Product Selection Guide 2013

KEMET makes it possible.

The Capacitance Company

KEMET

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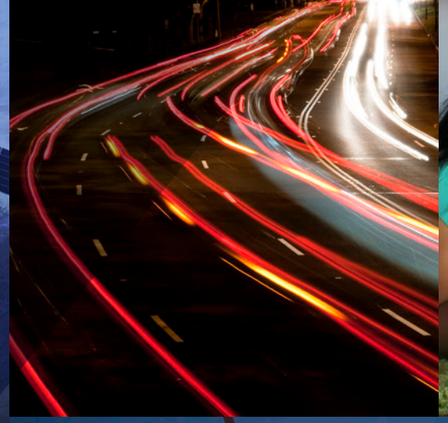



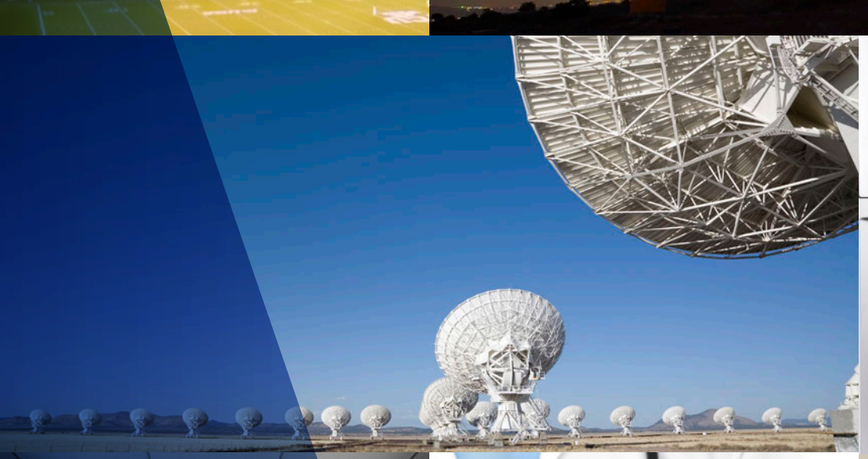




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One world. One source. One KEMET.

No bouncing from supplier to supplier to find what you need. No multiple web sites and phone calls to get answers.

When you partner with KEMET, our entire global organization seamlessly provides you with the coordinated action and service you need. We're your single, integrated source for capacitance solutions worldwide, offering 95% of possible dielectric solutions, to cover practically any application. With new, innovative products year after year after year. Global availability. Full design collaboration, with fast custom design and prototyping to give your new products a competitive edge. Plus consistent quality, reliability and on-time delivery.

All from one company that's easy to work with and totally dedicated to your success. For anything to do with capacitance, call *The Capacitance Company* – KEMET.

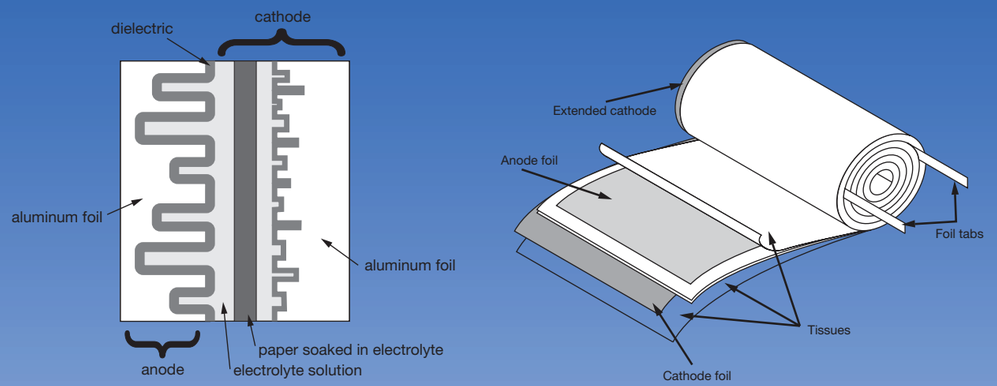
Aluminum Electrolytic Capacitors

Aluminum electrolytics offer some of the smallest sizes for a given capacitance and voltage. Commonly used for filtering and bulk energy storage, electrolytics are available in rated voltages up to 500 VDC.

KEMET Electrolytic capacitors are utilized in a wide variety of demanding power electronics applications such as automotive, power generators and converters, welders, wind turbines, uninterruptible power supplies, and medical imaging.

Electrolytic capacitors consist of aluminum foil which is first etched to increase its surface area. Separate, carefully designed etching techniques are used for the anode and cathode foils. A layer of aluminum oxide, an excellent dielectric, is formed on the surface of the etched anode foil before the foils are wound together between special separator papers. At the same time, tabs are welded to the foils to form the connections. The wound assembly is impregnated with a liquid electrolyte. This electrolyte is a precision-made compound which fully impregnates the etched foil, providing a low ESR conductive path to the cathode foil with stable electrical and chemical properties. KEMET crafts its own electrolytes to match the etched foil characteristics and desired final properties. The assembly is packaged in such a way as to provide excellent vibration resistance and low thermal resistance.

KEMET offers a broad line of axial, snap-in, screw terminal and miniature electrolytic capacitors; however, it is often beneficial to optimize the capacitor to a specific requirement, particularly in automotive and power applications. KEMET's systems and production methods are designed with optimization in mind. By utilizing a "library" of foils, electrolytes, separator papers, and mechanical parts in carefully selected combinations, KEMET can swiftly design and build optimized electrolytic capacitors to match a given specification.



Aluminum electrolytic capacitor typical construction

The Capacitance Company KEMET CHARGED.

Axial Aluminum Electrolytic Capacitors

	Series	Rated Temperature	Capacitance Range	Voltage Range (VDC)	Applications	Benefits
	PEG124	105°C 125°C	1 – 470 µF 10 – 4,700 µF	100 – 450 10 – 63	Electronic Ballast Industrial Automotive Telecom	• Long life > 30 years at 50°C • Low ESR • Low ESL
	PEG126 PEH126	150°C	250 – 4,000 µF	25 – 63	Automotive	• Low ESR • High ripple current • Intermittent specification • Resistance to vibrations • 150°C, 2,000h (Ø20), 1,500h (Ø16)
	PEG127	150°C	33 – 1,300 µF	25 – 63	Automotive	• High temperature rating • High ripple current • Up to 6.6A ripple (RMS, continuous load) • High vibration resistance • 150°C, 1,600h
	PEG220 PEH220	150°C	250 – 4,700 µF	25 – 63	Automotive	• Very high ripple current • Up to 21A ripple (RMS, continuous load) • High vibration resistance
	PEG225 PEH225	Up to 150°C	470 – 6,300 µF	25 – 63	Automotive	• Extremely high ripple current • Up to 28A ripple (RMS, continuous load) • High vibration resistance • High CV
	PEG226 PEH226	150°C	250 – 4,700 µF	25 – 63	Automotive	• Extremely high ripple current • Up to 28A ripple (RMS, continuous load) • High vibration resistance

Screw Terminal Aluminum Electrolytic Capacitors

	Series	Temperature Range	Capacitance Range	Voltage Range (VDC)	Life Expectancy @ Rated Voltage, Rated Temperature	Benefits
	ALS30/31	-40°C to +85°C	100 – 680,000 µF	25 – 500	40,000 hours	• Case sizes & terminals for the European market • 20,000 hours life at 85°C (U_R, I_R applied) • High ripple current • Excellent surge voltage capability
	ALS32/33	-40°C to +85°C	220 – 18,000 µF	350 – 500	40,000 hours	• Case sizes & terminals for the Asian market • 20,000 hours life at 85°C (U_R, I_R applied) • High ripple current • Excellent surge voltage capability
	ALS36/37	-40°C to +85°C	150 – 470,000 µF	25 – 500	20,000 hours	• Imperial case sizes and terminals for the North American market • Long life, up to 20,000 hours at +85°C • High ripple current • Excellent surge voltage capability • Optimized designs available upon request
	PEH200	-40°C to +85°C	100 – 330,000 µF	25 – 500	60,000 hours	• High CV value • Long life • Low ESR & ESL • Compact size
	PEH169	-40°C to +85°C	68 – 470,000 µF	10 – 450	78,000 hours	• High CV value • Long life • Low ESR & ESL • Compact size
	ALS40/41	-40°C to +105°C	150 – 680,000 µF	25 – 450	15,000 hours	• Compact size • 9,000 hours life at 105°C (U_R, I_R applied) • High ripple current • Excellent surge voltage capability
	ALS42/43	-40°C to +105°C	1,000 – 15,000 µF	350 – 450	20,000 hours	• Case sizes and terminals for the Asian market • Long life, up to 9,000 hours at +105°C • High ripple current • Excellent surge voltage capability • Optimized designs available upon request
	PEH169	-40°C to +105°C	100 – 330,000 µF	10 – 350	25,000 hours	• High CV value • Long life • Low ESR & ESL • Compact size
	PEH205	-55°C to +125°C	1,500 – 390,000 µF	16 – 100	Up to 8,000 hours (@ Ur, Ir, +125°C)	• High temperature +125°C • Long life • Low ESR & ESL • Compact size

Snap-In Aluminum Electrolytic Capacitors

Series	Temperature Range	Capacitance Range	Voltage Range (VDC)	Life Expectancy @ Rated Voltage, Rated Temperature	Benefits
ALC10	-40°C to +85°C	56 – 82,000 µF	40 – 500	29,000 hours	• Compact size • 18,000 hours life at 85°C (U_R, I_R applied) • High ripple current • Excellent surge voltage capability
ALC12	-40°C to +85°C	150 – 8,200 µF	200 – 450	9,000 hours	• Compact size • 2,000 hours life at 85°C (U_R, I_R applied) • Excellent surge voltage capability
PEH506	-40°C to +85°C	68 – 27,000 µF	35 – 450	6,000 hours	• Long life grade • PCB mounting • Low ESR & ESL • High ripple current
ELH	-40°C to +85°C	47 – 120,000 µF	6.3 – 450	2,000 hour	• High maximum rated voltage • General purpose • Low impedance • RoHS compliant and lead-free
ALC40	-40°C to +105°C	47 – 120,000 µF	25 – 450	14,000 hours	• Compact size • 9,000 hours life at 105°C (U_R, I_R applied) • High ripple current • Excellent surge voltage capability
ALC42	-40°C to +105°C	120 – 6,800 µF	200 – 450	11,000 hours	• Compact size • 2,000 hours life at 105°C (U_R, I_R applied) • Excellent surge voltage capability
PEH532	-40°C to +105°C	168 – 27,000 µF	35 – 500	2,000 hours	• Long life grade • PCB mounting • Low ESR & ESL • High ripple current
PEH534	-40°C to +105°C	150 – 22,000 µF	35 – 500	4,000 hours	• Long life grade • PCB mounting • Low ESR & ESL • High ripple current
PEH536	-40°C to +105°C	47 – 18,000 µF	35 – 500	6,000 hours	• Long life grade • PCB mounting • Low ESR & ESL • High ripple current
ELG	-40°C to +105°C	47 – 82,000 µF	6.3 – 450	2,000 hours	• High maximum rated voltage • General purpose • Low impedance • RoHS compliant and lead-free
PEH526	-40°C to +125°C	820 – 6,800 µF	25 – 80	4,000 hours	• 125°C temperature rating • High vibration specification • Low ESR • High ripple current capability

Other Aluminum Electrolytic Capacitors

Series	Temperature Range	Capacitance Range	Voltage Range	Life Expectancy @ Rated Voltage, Rated Temperature	Benefits
ALN20S	-40 to +85°C	10,000 µF	50 – 100	29,000 hours	• 4 pin solder tag • Long life • Slit foil technolgy
ALC10S	-40 to +85°C	10,000 µF	50 – 100	29,000 hours	• 2 pin solder tag • Long life • Slit foil technolgy
ALP/T 20	-40 to +85°C	22 – 150,000 µF	40 – 450	26,000 hours	• Solder tag & DIN standard solder pin • Long life

Aluminum Electrolytic Capacitors
The Capacitance Company KEMET CHARGED®

Other Aluminum Electrolytic Capacitors (cont.)

Series	Temperature Range	Capacitance Range	Voltage Range (VDC)	Life Expectancy @ Rated Voltage, Rated Temperature	Benefits
ALP/T 22	-40 to +85°C	22 – 150,000 µF	40 – 450	26,000 hours	• Solder tag & DIN standard solder pin • Long life
MS/MD	-20 to +60°C MS type -20 to +70°C MD types	25 – 750 µF	120 – 260 VAC		• AC motor start capacitors • 6.3 mm double amp tags (quick connect type) • VDE approved to EN60252-2

Surface Mount Aluminum Electrolytic Capacitors

Series	Temperature Range	Capacitance Range	Voltage Range (VDC)	Life Expectancy @ Rated Voltage, Rated Temperature	Benefits
EDK	-40°C to 105°C	0.1 – 1,000 µF	4 – 450	2,000 hours	• Low profile vertical chip • High maximum rated voltage • General purpose
EEV	-40°C to 105°C	4.7 – 1,500 µF	6.3 – 35	2,000 hours	• Low profile vertical chip • Ultra-low impedance
EXV	-40°C to 105°C	1 – 1,000 µF	6.3 – 50	3,000 – 5,000 hours	• Low profile vertical chip • Ultra low impedance • Suitable for long life applications

Through-Hole Radial Aluminum Electrolytic Capacitors

Series	Temperature Range	Capacitance Range	Voltage Range (VDC)	Life Expectancy @ Rated Voltage, Rated Temperature	Benefits
ESK	-40°C to +85°C	0 .1 – 22,000 µF	6.3 – 500	2,000 hours	• High maximum rated voltage • General purpose
ESH	-40°C to 105°C	0.47 – 15,000 µF	6.3 – 450	2,000 hours	• High maximum rated voltage • High CV product • General purpose
ESC	-40°C to 105°C	4.7 – 15,000 µF	6.3 – 100	2,000 – 3,000 hours	• Low ESR • High frequency • Low impedance
ESY	-40°C to 105°C	5.6 – 6,800 µF	6.3 – 100	1,000 – 5,000 hour	• Low impedance • High ripple current
ESG	-40°C to 105°C	4.7 – 330 µF	160 – 450	5,000 hours	• High maximum rated voltage • High ripple current • Suitable for long life applications
ESW	-40°C to 105°C	6.8 – 15,000 µF	6.3 – 100	3,000 – 6,000 hours	• Low impedance • High ripple current • Suitable for long life applications
EST	-40°C to 105°C	6.8 – 15,000 µF	6.3 – 63	4,000 – 10,000 hours	• Low impedance • Long life • Suitable for long life applications

Looking for a hassle-free source for 95% of possible dielectric solutions?

KEMET is the place for one-stop dielectric shopping. We offer our customers the broadest selection of capacitor technologies in the industry, including tantalum, ceramic, aluminum, electrolytic, film and paper.

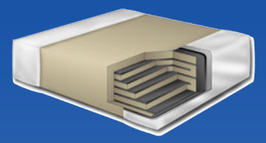
But the range of products is only the beginning. You simply won't find an electronic components manufacturer more determined to find new technological solutions to customer problems, or more committed to product quality and on-time delivery – in every case, lowering your total cost of ownership as much as we possibly can. It's how we've helped customers succeed for more than 90 years. And it's how we're helping them succeed today.

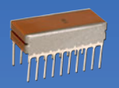
Multilayer Ceramic Capacitors (MLCCs)

KEMET Multilayer Ceramic Capacitors (MLCCs) offer tremendous performance, reliability and cost advantages for circuit designers. Our comprehensive line of surface mount and through-hole devices are utilized in a variety of computer, telecommunications, automotive, military, medical and consumer electronics. Primary applications include decoupling, filtering, bypassing and smoothing.

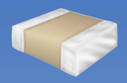
Ceramics are non-polar devices which offer unsurpassed volumetric efficiency, delivering the highest capacitance in the smallest package sizes in the market. Available in a wide range of sizes, KEMET MLCCs offer very low equivalent series resistance (ESR), exhibit excellent high frequency characteristics and are extremely reliable. KEMET is driving ceramic technology advancement, resulting in smaller case sizes, better performance and lower cost. These factors have accelerated the progression of readily available ceramics into markets and applications previously occupied by tantalum, aluminum and film capacitors.

MLCCs are monolithic devices that consist of laminated layers of specially formulated, ceramic dielectric materials interspersed with a metal electrode system. The layered formation is then fired at high temperature to produce a sintered and volumetrically efficient capacitance device. A conductive termination barrier system is integrated on the exposed ends of the chip to complete the connection. KEMET offers one of the broadest product portfolios of ceramic capacitors in the industry, providing customers the right combination of dielectric, termination system, form factor and screening.





- **Dielectrics**
  Ceramic MLCCs are offered in temperature and voltage stable C0G (NP0), temperature stable X8R, X7R and X5R as well as general purpose X8L, Z5U and Y5V dielectrics. KEMET provides dielectrics in both base metal electrodes (BME) and precious metal electrodes (PME) technologies. Military designated dielectrics such as BP, BX and BR, and a wide range of high temperature (to 260°C) and high voltage dielectric solutions for extreme environments are available.



- **Terminations**
  KEMET offers a variety of termination systems including RoHS compliant tin, tin-lead, gold and custom options. KEMET's Flex Mitigation products reduce risk of flex-related board failure and provide a benign failure mode.

- **Form Factors**
  Surface mount, through-hole, J-leads, L-leads, S-leads, stacked and modules are some of the form factors that KEMET produces. Customers can tailor a part for their requirements.

- **Screening**
  KEMET offers parts that meet varying testing and screening levels. This includes general purpose commercial grades, automotive grade (AEC-Q200), medical grades and parts qualified to many military specifications.

- **Environmental Compliance**
  KEMET's standard ceramic products meet RoHS criteria and are compatible with modern solder processes including multiple reflow passes.

Surface Mount Multilayer Ceramic Chip Capacitors (SMD MLCCs)

C0G, X7R, X5R, Z5U & Y5V Dielectrics • 4 – 250 VDC (Commercial & Automotive Grades)

Size Code EIA/Metric	Dielectric/ Capacitance Range	Voltage Range (VDC)
0201/0603	C0G 10 – 100 pF X5R 0.01 – 0.1 µF	6.3 – 25 4 – 16
0402/1005	C0G 0.1 – 22 pF X7R 100 – 0.1 µF X5R 0.012 – 4.7 µF Y5V 0.022 – 1.0 µF	50 – 100 6.3 – 50 4 – 16 6.3 – 16
0603/1608	C0 0.3 – 47 pF X7R 100 – 2.2 µF X5R 0.27 – 10 µF Y5V 0.022 – 1.0 µF	50 – 250 6.3 – 200 4 – 25 6.3 – 25
0805/2012	C0G 0.3 – 100 pF X7R 100 – 2.2 µF X5R 0.47 – 47 µF Z5U 6,800 – 0.1 µF Y5V 0.022 – 10 µF	50 – 250 6.3 – 250 4 – 25 50 – 100 6.3 – 50
1206/3216	C0G 1.0 – 0.1 µF X7R 1,000 – 10 µF X5R 0.27 – 100 µF Z5U 0.01 – 0.22 µF Y5V 0.22 – 22 µF	10 – 200 6.3 – 250 6.3 – 50 50 – 100 6.3 – 50
1210/3225	C0G 1.0 – 0.22 µF X7R 2,200 – 47 µF X5R 0.33 – 100 µF Z5U 0.47 – 1.0 µF Y5V 0.22 – 22 µF	10 – 200 6.3 – 250 6.3 – 35 50 – 100 6.3 – 50
1808/4520	C0G 330 – 4,700 pF X7R 4,700 – 0.18 µF	50 – 200
1812/4532	C0G 470 – 0.22 µF X7R 6,800 – 10 µF Z5U 0.082 – 1.0 µF	50 – 200 25 – 250 50 – 100
1825/4564	C0G 3,900 – 0.027 µF X7R 0.022 – 2.2 µF Z5U 0.18 – 2.2 µF	50 – 200 25 – 250 50 – 100
2220/5650	C0G 6,800 – 0.47 µF X7R 0.082 – 22 µF	50 – 100 25 – 250
2225/5664	C0G 4,700 – 0.033 µF X7R 0.1 – 2.2 µF Z5U 0.33 – 2.2 µF	50 – 200 50 – 250 50 – 100

Benefits

General (All Dielectrics)
- Pb-Free and RoHS compliant (excluding SnPb end metallization option)
- Non-polar device, minimizing installation concerns
- 100% pure matte tin-plated end metallization allowing for excellent solderability
- Note commercial & automotive capacitance ranges may differ. Refer to specific catalog for more details.

C0G Dielectric
- -55°C to +125°C operating temperature range
- Commercial and Automotive (AEC-Q200) Grades available
- No piezoelectric noise
- Extremely low ESR and ESL
- High thermal stability
- High ripple current capability
- Preferred capacitance solution at line frequencies and into the MHz range
- No capacitance change with respect to applied rated DC voltage
- Negligible capacitance change with respect to temperature from -55°C to +125°C
- No capacitance decay with time
- SnPb plated end metallization option available upon request (5% min)
- COTS (Commercial Off-The-Shelf) screening available

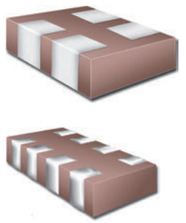
X7R Dielectric
- -55°C to +125°C operating temperature range
- Commercial and Automotive (AEC-Q200) Grades available
- Temperature stable dielectric
- SnPb end metallization option available upon request (5% min)
- Telecom "Tip and Ring," 250 VDC available
- COTS (Commercial Off-The-Shelf) screening available

X5R Dielectric
- -55°C to +85°C operating temperature range
- Commercial and Automotive (AEC-Q200) Grades available
- Temperature stable Dielectric

Z5U Dielectric
- +10°C to +85°C operating temperature range

Y5V Dielectric
- -30°C to +85°C operating temperature range

Capacitor Array • X7R & C0G Dielectric • 10 – 200 VDC (Commercial & Automotive Grades)



Size Code	Dielectric/ Capacitance Range	Voltage Range (VDC)
0508 Array (2 Capacitor)	C0G 100 – 2,200 pF X7R 330pF – 0.22 µF	10 – 100 10 – 100
0612 Array (4 Capacitor)	C0G 10 – 470 pF X7R 330 pF – 0.1 µF	10 – 200 10 – 200

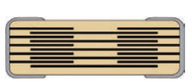
Benefits
- -55°C to +125°C operating temperature range
- Commercial and Automotive (AEC-Q200) Grades available
- Saves both circuit board and inventory space
- Reduces placement costs and increases throughput
- Pb-Free and RoHS compliant (excluding SnPb end metallization option)
- EIA 0508 (2-capacitor) and 0612 (4-capacitor) case sizes
- Non-polar device, minimizing installation concerns
- Flexible termination option is standard on 0508 case size arrays
- 100% pure matte tin-plated end metallization allowing for excellent solderability
- SnPb end metallization option available upon request (5% min)

Flex Mitigation Solutions • Surface Mount Multilayer Ceramic Chip Capacitors (SMD MLCCs)

Open Mode Design • X7R Dielectric • 16 – 200 VDC (Commercial & Automotive Grade) Available with Flexible Termination System (FO-CAP)

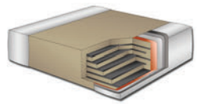
Size Code EIA/Metric	Capacitance Range	Voltage Range (VDC)	Benefits
0805/2012	1,000 pF – 0.68 µF	16 – 200	• -55°C to +125°C operating temperature range • Available with Flexible Termination System (FO-CAP) • Commercial and Automotive (AEC-Q200) Grades available • Open Mode/fail open design • Mid to high capacitance flex mitigation • Pb-Free and RoHS compliant (excluding SnPb end metallization option) • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated end metallization allowing for excellent solderability • SnPb end metallization option available upon request (5% min)
1206/3216	0.018 – 4.7 µF	16 – 200	
1210/3225	0.068 – 6.8 µF	16 – 200	
1812/4532	0.047 – 4.7 µF	25 – 200	

Floating Electrode Design (FE-CAP) • X7R Dielectric • 6.3 – 250 VDC (Commercial & Automotive Grade)



Size Code EIA/Metric	Capacitance Range	Voltage Range (VDC)	Benefits
0402/1005	150 – 1,000 pF	6.3 – 50	• -55°C to +125°C operating temperature range • Commercial and Automotive (AEC-Q200) Grades available • Floating Electrode/fail open design • Low to mid capacitance flex mitigation • Pb-Free and RoHS compliant (excluding SnPb end metallization option) • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated end metallization allowing for excellent solderability • SnPb end metallization option available upon request (5% min)
0603/1608	180 pF – 0.022 µF	6.3 – 200	
0805/2012	180 pF – 0.10 µF	6.3 – 250	
1206/3216	1,000 pF – 0.12 µF	6.3 – 250	
1210/3225	2,200 pF – 0.22 µF	6.3 – 250	
1812/4532	6,800 pF – 0.22 µF	6.3 – 250	

Flexible Termination Sytem (FT-CAP) • X7R Dielectric • 6.3 – 3,000 VDC (Commercial & Automotive Grade)



Size Code EIA/Metric	Dielectric/Capacitance Range	Voltage Range (VDC)	Benefits
0603/1608	180 pF – 0.47 µF	6.3 – 200	• -55°C to +125°C operating temperature range • Superior flex performance (up to 5 mm) • High capacitance flex mitigation • Commercial and Automotive (AEC-Q200) grades available • Pb-Free and RoHS compliant (excluding SnPb end metallization option) • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated end metallization allowing for excellent solderability • SnPb end metallization option available upon request (5% minimum)
0805/2012	180 pF – 2.2 µF 62 pF – 0.012 µF	6.3 – 250 500 – 1,000	
1206/3216	1,000 pF – 10.0 µF 75 pF – 0.068 µF	6.3 – 250 500 – 2,000	
1210/3225	2,200 pF – 22.0 µF 130 pF – 0.15 µF	6.3 – 250 500 – 2,000	
1808/4520	4,700 pF – 0.18 µF 75 pF – 0.15 µF	50 – 200 500 – 3,000	
1812/4532	6,800 pF – 10.0 uF 150 pF – 0.33 uF	25 – 250 500 – 3,000	
1825/4564	0.022 – 2.2 µF 330 pF – 0.22µF	50 – 250 500 – 3,000	
2220/5650	0.047 – 22.0µF 330 pF – 0.22 µF	25 – 250 50 – 3,000	
2225/5664	0.047 – 2.2 µF 470 pF – 0.27 µF	50 – 250 500 – 3,000	

Ceramic Capacitors
The Capacitance Company KEMET CHARGED®

Flex Mitigation Solutions • Surface Mount Multilayer Ceramic Chip Capacitors (cont.)

Flexible Termination Sytem (FT-CAP) • C0G (NP0) Dielectric • 25 – 200 VDC (Commercial & Automotive Grade)

Size Code EIA/Metric	Dielectric/Capacitance Range	Voltage Range (VDC)	Benefits
0603/1608	0.5 pF – 0.015 µF	10 – 200	• -55°C to +150°C operating temperature range • Superior flex performance (up to 5 mm) • Pb-Free and RoHS compliant • Available capacitance tolerances of ±1%, ±2%, ±5%, ±10%, and ±20% • Extremely low ESR and ESL • High thermal stability • High ripple current capability • No capacitance change with respect to applied rated DC voltage • Non-polar device, minimizing installation concerns • Commercial & Automotive (AEC–Q200) Grades available • 100% pure matte tin-plated termination finish that allowing for • excellent solderability
0805/2012	0.5 pF – 0.047 µF	10 – 200	
1206/3216	1.0 pF – 0.056 µF	10 – 200	
1210/3225	1.0 – 9,100 pF	10 – 200	
1812/4532	470 pF – 0.22 µF	10 – 200	

Flexible Termination Sytem (FT-CAP) • X8L Dielectric • 6.3 – 3,000 VDC (Commercial & Automotive Grade)

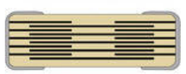
Size Code EIA/Metric	Dielectric/Capacitance Range	Voltage Range (VDC)	Benefits
0603/1608	0.047 – 0.22 µF	6.3 – 200	• -55°C to +150°C operating temperature range • Superior flex performance (up to 5 mm) • High capacitance flex mitigation • Commercial and Automotive (AEC-Q200) grades available • Pb-Free and RoHS compliant (excluding SnPb end metallization option) • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated end metallization allowing for excellent solderability • SnPb end metallization option available upon request (5% minimum)
0805/2012	0.15 – 1.0 µF	6.3 – 250 500 – 1,000	
1206/3216	0.47 – 4.7 µF	6.3 – 250 500 – 2,000	
1210/3225	0.39 – 10.0 µF	6.3 – 250 500 – 2,000	

Flexible Termination Sytem (FT-CAP) • Ultra-Stable X8R Dielectric • 25 – 100 VDC (Commercial & Automotive Grade)

Size Code EIA/Metric	Dielectric/Capacitance Range	Voltage Range (VDC)	Benefits
0805/2012	2,200 pF – 0.033 µF	10 – 200	• -55°C to +150°C operating temperature range • Superior flex performance (up to 5 mm) • Pb-Free and RoHS compliant • Available capacitance tolerances of ±1%, ±2%, ±5%, ±10%, and ±20% • Extremely low ESR and ESL • High thermal stability • High ripple current capability • No capacitance change with respect to applied rated DC voltage • Non-polar device, minimizing installation concerns • Commercial & Automotive (AEC–Q200) Grades available • 100% pure matte tin-plated termination finish that allowing for excellent solderability
1206/3216	6,800 pF – 0.10 µF	10 – 200	
1812/4532	0.10 – 0.22 µF	10 – 200	

Flex Mitigation Solutions • Surface Mount Multilayer Ceramic Chip Capacitors (cont.)

Floating Electrode Design with Flexible Termination System (FF-CAP) • X7R Dielectric • 6.3 – 250 VDC (Commercial & Automotive Grade)



Size Code EIA/Metric	Capacitance Range	Voltage Range (VDC)	Benefits
0603/1608	180 pF – 0.022 µF	6.3 – 200	• -55°C to +125°C operating temperature range • Commercial and Automotive (AEC-Q200) Grades available • Superior flex performance (up to 5 mm) • Floating Electrode/fail open design • Low to mid capacitance flex mitigation • Pb-Free and RoHS compliant (excluding SnPb end metallization option) • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated end metallization allowing for excellent solderability • SnPb end metallization option available upon request (5% min)
0805/2012	180 pF – 0.10 µF	6.3 – 250	
1206/3216	1,000 pF – 0.12 µF	6.3 – 250	
1210/3225	2,200 pF – 0.22 µF	6.3 – 250	
1812/4532	6,800 pF– 0.22 µF	6.3 – 50	

KPS Series • Leadframe Mounted • Stacked • X7R Dielectric • 10 – 250 VDC (Commercial & Automotive Grade)

Size Code EIA/Metric	Capacitance Range	Voltage Range (VDC)	Benefits
1210/3225	0.10 – 47.0 µF	10 – 250	• -55°C to +125°C operating temperature range • Commercial and Automotive (AEC-Q200) Grades available • Reliable and robust termination system • Higher capacitance in the same footprint • Potential board space savings • Advanced protection against thermal and mechanical stress • Provides up to 10 mm of board flex capability • Reduces audible, microphonic noise • Extremely low ESR and ESL • Pb-Free and RoHS compliant • Capable of Pb-Free reflow profiles • Non-polar device, minimizing installation concerns • Tantalum and electrolytic alternative
1812/4532	0.10 – 22.0 µF	16 – 250	
2220/5650	0.10 – 47.0 µF	16 – 250	

Through-Hole Multilayer Ceramic Capacitors (THD MLCCs)

Axial (Aximax) • Conformally Coated • C0G (NP0), X7R & Z5U Dielectrics • 25 – 250 VDC (Commercial & Automotive Grade)

Series Code	Dimensions L x D (inches max)	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
C410	0.170 x 0.100	C0G 1.0 – 4,700 pF X7R 10 pF – 1.0 µF Z5U 1,000 pF – 0.22 µF	50 – 200 25 – 250 50 – 200	General (All Dielectrics) • Pb-Free and RoHS compliant (excluding SnPb lead material option) • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated lead material allowing for excellent solderability • SnPb plated lead material option available upon request (60/40) • 0.51mm lead diameter • Through-hole technology offers excellent flex performance C0G (NP0) Dielectric • -55°C to +125°C operating temperature range • Commercial and Automotive (AEC-Q200) Grades available • No piezoelectric noise • Low ESR and ESL • High thermal stability • High ripple current capability • Preferred capacitance solution at line frequencies and into the MHz range • No capacitance change with respect to applied rated DC voltage • Negligible capacitance change with respect to temperature from -55°C to +125°C • No capacitance decay with time X7R Dielectric • -55°C to +125°C operating temperature range • Commercial and Automotive (AEC-Q200) Grades available • Temperature stable dielectric Z5U Dielectric • +10°C to +85°C operating temperature range
C412	0.170 x 0.120	C0G 120 – 4,700 pF X7R 0.015 – 0.1 µF Z5U 0.12 – 0.33 µF	50 – 200 25 – 250 50 – 200	
C420	0.260 x 0.100	C0G 390 pF – 0.01 µF X7R 6,800 pF – 1.0 µF Z5U 0.027 – 0.47 µF	50 – 200 25 – 250 50 – 200	
C430	0.290 x 0.150	C0G 1,800 pF – 0.01 µF X7R 0.022 – 4.7 µF Z5U 0.022 – 1.0 µF	50 – 200 25 – 250 50 – 200	
C440	0.400 x 0.150	C0G 5,600 pF – 0.015 µF X7R 0.022 pF – 4.7 µF Z5U 0.18 – 2.2 µF	50 – 200 25 – 250 50 – 200	

Ceramic Capacitors
The Capacitance Company KEMET CHARGED®

Through-Hole Multilayer Ceramic Capacitors (THD MLCCs) (cont.)

Radial (Goldmax) • Conformally Coated • C0G (NP0), X7R & Z5U Dielectrics • 25 – 250 VDC (Commercial & Automotive Grade)

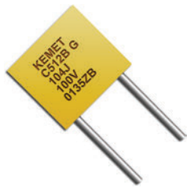
Series Code	Dimensions L x H x T (inches max)	Lead Spacing (inches)	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
C315	0.150 x 0.210 x 0.100	0.10	C0G 1.0 pF – 4,700 pF X7R 100 pF – 1.0 µF Z5U 1,000 pF – 0.1 µF	50 – 200 25 – 250 50 – 200	General (All Dielectrics) • Pb-Free and RoHS compliant (excluding SnPb lead material option) • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated lead material allowing for excellent solderability • SnPb plated lead material option available upon request (60/40) • Several lead configuration options available (See catalog for details) • See High Voltage table for >250 VDC availability • 0.51 mm lead diameter (C31X-C34X) • 0.64 mm lead diameter (C35X) • Through-hole technology offers excellent flex performance C0G (NP0) Dielectric • -55°C to +125°C operating temperature range • Commercial and Automotive (AEC-Q200) Grades available • No piezoelectric noise • Low ESR and ESL • High thermal stability • High ripple current capability • Preferred capacitance solution at line frequencies and into the MHz range • No capacitance change with respect to applied rated DC voltage • Negligible capacitance change with respect to temperature from -55°C to +125°C • No capacitance decay with time X7R Dielectric • -55°C to +125°C operating temperature range • Commercial and Automotive (AEC-Q200) Grades available • Temperature stable dielectric Z5U Dielectric • +10°C to +85°C operating
C316	0.150 x 0.230 x 0.100	0.10			
C317	0.150 x 0.230 x 0.100	0.20			
C318	0.150 x 0.235 x 0.100	0.20			
C320	0.200 x 0.260 x 0.125	0.10	C0G 1.0 – 0.015 µF X7R 100 – 10 µF Z5U 1,000 – 1.0 µF	50 – 200 25 – 250 50 – 200	
C321	0.200 x 0.260 x 0.125	0.25			
C322	0.200 x 0.260 x 0.125	0.20			
C323	0.200 x 0.320 x 0.125	0.20			
C324	0.200 x 0.260 x 0.125	0.10			
C325	0.200 x 0.320 x 0.125	0.20			
C326	0.200 x 0.350 x 0.125	0.10			
C327	0.200 x 0.350 x 0.125	0.20			
C328	0.200 x 0.325 x 0.125	0.20			
C330	0.300 x 0.360 x 0.150	0.20	C0G 47 pF – 0.033 µF X7R 4,700 pF – 2.2 µF Z5U 0.010 – 2.2 µF	50 – 200 25 – 250 50 – 200	
C331	0.300 x 0.360 x 0.150	0.25			
C333	0.300 x 0.390 x 0.150	0.20			
C335	0.300 x 0.420 x 0.150	0.20			
C336	0.300 x 0.450 x 0.150	0.20			
C340	0.400 x 0.460 x 0.150	0.20	C0G 0.01 – 0.068 µF X7R 0.068 – 4.7 µF Z5U 0.10 – 4.7 µF	50 – 200 25 – 250 50 – 200	
C346	0.400 x 0.590 x 0.150	0.20			
C350	0.500 x 0.560 x 0.200	0.40	C0G 0.022 – 0.12 µF X7R 0.18 – 10 µF Z5U 0.18 – 6.8 µF	50 – 200 25 – 250 50 – 200	
C356	0.500 x 0.670 x 0.200	0.40			

Axial • Molded • C0G (NP0) & X7R Dielectrics • 50 – 200 VDC (Commercial Grade)

Series Code	Dimensions L x D (inches max)	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
C114	0.160 x 0.090	C0G 1.0 – 680 pF X7R 10 pF – 0.01 µF	100 – 200 50 – 100	• -55°C to +125°C operating temperature range • Pb-Free and RoHS compliant (excluding SnPb lead material option) • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated lead material allowing for excellent solderability • SnPb plated lead material option available upon request (60/40) • 0.51 mm lead diameter (C114 & C124) • 0.64 mm lead diameter (C192, C202 & C222) • Through-hole technology offers excellent flex performance
C124	0.250 x 0.090	C0G 390 – 1,000 pF X7R 5,600 pF – 0.047 µF	100 – 200 50 – 100	
C192	0.390 x 0.140	C0G 680 – 8,200 pF X7R 0.012 – 0.27 µF	100 – 200 50 – 100	
C202	0.500 x 0.250	C0G 5,600 pF – 0.033 µF X7R 0.056 – 1.0 µF	100 – 200 50 – 100	
C222	0.690 x 0.350	C0G 0.027 – 0.1 µF X7R 0.47 – 3.3 µF	100 – 200 50 – 100	

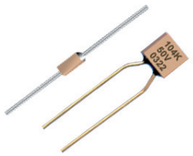
Through-Hole Multilayer Ceramic Capacitors (THD MLCCs) (cont.)

Radial • Molded • C0G (NP0) & X7R Dielectrics • 50 – 200 VDC (Commercial Grade)



Series Code	Dimensions L x H x T (inches)	Lead Spacing (inches)	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
C052/56	0.190 x 0.190 x 0.090	0.20	C0G 1.0 – 4,700 pF X7R 10 pF – 0.1 µF	50 – 200	• -55°C to +125°C operating temperature range • Pb-Free and RoHS compliant (excluding SnPb lead material option) • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated lead material allowing for excellent solderability • SnPb plated lead material option available upon request (60/40) • 0.51 mm lead diameter (C31X-C34X) • 0.64 mm lead diameter (C35X) • Through-hole technology offers excellent flex performance
C062/66	0.290 x 0.290 x 0.090	0.20	C0G 3,300 pF – 0.022 µF X7R 1,200 pF – 1.0 µF	50 – 200	
C512	0.480 x 0.480 x 0.140	0.40	C0G 0.012 – 0.1 µF X7R 1.0 – 2.2 µF	50 – 200	
C522	0.480 x 0.480 x 0.240	0.40	C0G 0.082 – 0.18 µF X7R 1.0 – 3.3 µF	50 – 200	

C³ Technology • Axial & Radial • C0G (NP0) & X7R Dielectrics • 50 – 200 VDC (Robust • MIL Screened)



Series Code	Form Factor	Dielectric	Capacitance Range	Voltage Range (VDC)	Benefits
SCR	Radial	C0G (NP0)	10 pF– 0.068 µF	50 – 200	• -55°C to +125°C operating temperature range • C³ designs provide robust protection for extreme environments • Internal lead wire attachment • Non-coated • Axial and radial form factor • Available with screening to MIL-PRF-20, Group A (C0G) • Available with screening to MIL-PRF-39014, Group A (X7R) • Lead spacing options of .020 & .025 (inches) • Lead diameter options of 0.20 & 0.40 (inches) • Solder coated copper clad steel lead material (standard) • Gold plated copper clad steel lead material option • Through-hole technology offers excellent flex performance
SRR	Radial	X7R	680 pF – 4.7 µF		
SCA	Axial	C0G (NP0)	10 pF – 0.1 µF		
SRA	Axial	X7R	1,000 pF – 5.6 µF		

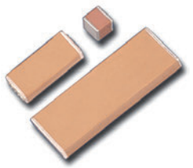
The Capacitance Company KEMET CHARGED®
Ceramic Capacitors

High Voltage Surface Mount Multilayer Ceramic Chip Capacitors (SMD MLCCs)

High Voltage • C0G (NP0) & X7R Dielectrics • 500 – 3 K VDC (Commercial & Automotive Grade)

Size Code EIA/Metric	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
0805/2012	C0G 1.0 – 220 pF X7R 10 – 0.012 µF	500 – 1,000	• -55°C to +125°C operating temperature range • Available in Commercial and Automotive Grade (AEC-Q200) • Flexible termination (FT-CAP) option available upon request • Pb-Free and RoHS compliant (excluding SnPb end metallization option) • DC voltage ratings of 500 V, 630 V, 1 KV, 1.5 KV, 2 KV, 2.5 KV, 3 KV • Available capacitance tolerances of ±5%, ±10% and ±20% • Low ESR and ESL • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated end metallization allowing for excellent solderability • SnPb plated end metallization option available upon request (5% min)
1206/3216	C0G 10 – 1,000 pF X7R 10 – 0.068 µF	500 – 2,000	
1210/3225	C0G 10 – 3,300 pF X7R 10 – 0.15 µF	500 – 2,000	
1808/4520	C0G 1.0 – 2,700 pF X7R 100 – 0.15 µF	500 – 3,000	
1812/4532	C0G 10 – 3,900 pF X7R 10 – 0.33 µF	500 – 3,000	
1825/4564	C0G 10 – 8,200 pF X7R 100 – 0.22 µF	500 – 3,000	
2220/5650	C0G 10 pF – 8,200 pF X7R 100 pF – 0.22 µF	500 – 3,000	
2225/5664	C0G 10 pF – 0.01 pF X7R 100 pF – 0.27 µF	500 – 3,000	

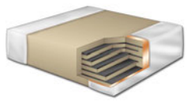
Large Chip • High Voltage • C0G (NP0) & X7R Dielectrics • 500 – 5 K VDC (Robust • MIL Screened)



Case Size (EIA)	Dimensions (mm)	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
1515	3.81 x 3.81	C0G 12 – 4,700 pF X7R 270 pF – 0.1 µF	500 – 3,000 500 – 2,000	• -55°C to +125°C operating temperature range • DC voltage ratings of 500 V, 1 KV, 2 KV, 3 KV, 4 KV and 5 KV • Available capacitance tolerances of ±5%, ±10%, ±20%, 0/+100% and -20%/+80% • Low ESR and ESL • Non-polar device, minimizing installation concerns • Available with screening to MIL-PRF-49467, Group A & B • Several end metallization options available (See catalog for details) • Infared or vapor phase soldering process recommended
1812	4.57 x 3.05	C0G 12 – 2,700 pF X7R 270 pF – 0.056 µF	500 – 3,000 500 – 2,000	
1825	4.57 x 6.35	C0G 22 – 8,200 pF X7R 560 pF – 0.15 µF	500 – 3,000	
2020	5.08 x 5.08	C0G 22 – 8,200 pF X7R 560 pF – 0.18 µF	500 – 3,000	
2225	5.59 x 6.35	C0G 27 – 0.012 µF X7R 680 pF – 0.22 µF	500 – 3,000	
2520	6.35 x 5.08	C0G 27 pF – 0.01 µF X7R 680 pF – 0.22 µF	500 – 4,000 500 – 3,000	
3333	8.38 x 8.38	C0G 27 pF – 0.015 µF X7R 1,200 pF – 0.82 µF	500 – 4,000 500 – 3,000	
3530	8.89 x 7.62	C0G 27 pF – 0.022 µF X7R 270 pF – 0.56 µF	500 – 4,000	
4040	10.2 x 10.2	C0G 18 pF – 0.039 µF X7R 470 pF – 0.82 µF	500 – 4,000	
4540	11.43 x 10.2	C0G 18 pF – 0.056 µF X7R 470 pF – 1.2 µF	500 – 5,000	
5440	13.7 x 10.2	C0G 27 pF – 0.082 µF X7R 680 pF – 1.5 µF	500 – 4,000	
5550	14.0 x 12.7	C0G 27 pF – 0.068 µF X7R 680 pF – 1.8 µF	500 – 5,000	
6560	16.5 x 15.2	C0G 47 pF – 0.1 µF X7R 1,200 pF – 2.2 µF	500 – 5,000	

High Voltage Surface Mount Multilayer Ceramic Chip Capacitors (SMD MLCCs) (cont.)

ArcShield™ Technology • High Voltage Arc-Over Prevention • X7R Dielectric • 500 – 1,000 VDC (Commercial & Automotive Grade)



Size Code EIA/Metric	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
0805/2012	2,200 – 0.012 µF	500 – 1,000	• ArcShield (patent pending) technology • Base metal electrode(BME) dielectric system • Industry leading CV values • -55°C to +125°C operating temperature range • Exceptional performance at high frequencies • Base metal electrode (BME) dielectric system • Pb-Free and RoHS compliant • Available capacitance tolerances of ± 5%, ± 10% and ± 20% • Low ESR and ESL • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated termination finish allowing for excellent solderability • SnPb plated termination finish option available upon request (5% min) • Flexible Termination option available upon request
1206/3216	0.012 – 0.068 µF	500 – 1,000	
1210/3225	0.022 – 0.15 µF	500 – 1,000	
1808/4520	0.018 – 0.115 µF	500 – 1,000	
1812/4532	0.927 – 0.33 µF	500 – 1,000	

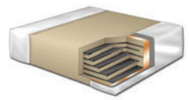
KPS HV (SM Series) • Leadframe Mounted • High Voltage • C0G (NP0) & X7R Dielectrics • 500 – 5 K VDC (Robust • MIL Screened)

Case Size (EIA)	Dimensions (mm)	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
SM20	3.81 x 3.81	C0G 12 – 4,700 pF X7R 270 pF – 0.082 µF	500 – 3,000 500 – 2,000	• -55°C to +125°C operating temperature range • DC voltage ratings of 500 V, 1 KV, 2 KV, 3 KV, 4 KV and 5 KV • Available capacitance tolerances of ±5%, ±10%, ±20%, 0/+100% and -20%/+80% • "J" & "L" lead configurations available • Reduced microphonics • Reliable and robust termination system • Advanced protection against thermal and mechanical stress • Improved flex performance • Reduces audible, microphonic noise • Non-polar device, minimizing installation concerns • Available with screening to MIL-PRF-49467, Group A & B • Several end metallization options available (See catalog for details)
SM21	5.08 x 5.08	C0G 22 – 8,200 pF X7R 560 pF – 0.18 µF	500 – 3,000 500 – 3,000	
SM22	6.35 x 5.08	C0G 27 pF – 0.01 µF X7R 680 pF – 0.22 µF	500 – 3,000	
SM23	8.89 x 7.62	C0G 27 pF – 0.022 µF X7R 270 pF – 0.56 µF	500 – 4,000	
SM24	11.43 x 10.2	C0G 18 pF – 0.056 µF X7R 470 pF – 1.2 µF	500 – 5,000	
SM25	14.0 x 12.7	C0G 27 pF – 0.082 µF X7R 470 pF – 1.8 µF	500 – 5,000	
SM26	16.5 x 15.2	C0G 47 pF – 0.1 µF X7R 1,200 pF – 2.7 µF	500 – 5,000	
SM30	7.62 X 3.81	C0G 10 pF – 0.015 µF X7R 150 pF – 0.22 µF	500 – 4,000	
SM31	10.2 X 5.08	C0G 10 pF – 0.027 µF X7R 270 pF – 0.39 µF	500 – 5,000	
SM33	17.08 X 7.62	C0G 12 pF – 0.12 µF X7R 220 pF – 1.5 µF	500 – 7,000	
SM34	22.9 X 10.2	C0G 22 pF – 0.15 µF X7R 470 pF – 1.5 µF	500 – 10,000	
SM35	27.9 X 12.7	C0G 33 pF – 0.22 µF X7R 820 pF – 3.9 µF	500 – 10,000	
SM36	33.0 X 15.2	C0G 56 pF – 0.33 µF X7R 1,200 pF – 5.6 µF	500 – 10,000	

Ceramic Capacitors
The Capacitance Company KEMET CHARGED®

High Voltage Surface Mount Multilayer Ceramic Chip Capacitors (SMD MLCCs) (cont.)

Pulse Detonation • High Voltage • High Temperature 200°C • C0G Dielectric • 500 – 2,000 VDC (Industrial Grade)



Case Size (L" x W")	Capacitance Range	Voltage Range (VDC)	Breakdown Voltage Range (VDC)	Benefits
2824	0.5 pF – 0.068 µF	500 – 2,000	1,500 – 4,000	• -55°C to +200°C operating temperature range • Pb-Free and RoHS compliant • Base metal technology • High breakdown voltage capability up to +200°C • Higher UVBD capability than competitive dielectric technologies • Capacitance offerings ranging from 0.5 pF up to 0.15 µF • Available capacitance tolerances of ±5%, ±10% or ±20% • Extremely low ESR and ESL • High thermal stability • High ripple current capability • No capacitance change with respect to applied rated DC voltage • Negligible capacitance change with respect to temperature from -55°C to +200°C • No capacitance decay with time • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated termination finish allowing for excellent solderability
3040	0.5 pF – 0.1 µF			
3640	0.5 pF – 0.12 µF			

High Voltage Through-Hole Multilayer Ceramic Capacitors (THD MLCCs)

High Voltage Goldmax Series • Radial • Conformally Coated • C0G (NP0) & X7R Dielectrics • 500 – 3 K VDC (Commercial & Automotive Grade)

Series Code	Dimensions L x H x T (inches)	Lead Spacing (inches)	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
C315	0.150 x 0.210 x 0.100	0.10	C0G 1.0 – 180 pF X7R 10 – 3,300 pF	500 – 1,000	General (All Dielectrics) • Pb-Free and RoHS compliant (excluding SnPb lead material option) • DC voltage ratings of 500 V, 1 KV, 1.5 KV, 2 KV, 2.5 KV, 3 KV • Available capacitance tolerances of ±0.25 pF, ±0.5 pF, ±1 pF, ±2 pF, ±5%, ±10% and ±20% • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated lead material allowing for excellent solderability • SnPb plated lead material option available upon request (60/40) • Several lead configuration options available (See catalog for details) • 0.51 mm lead diameter (C31X-C34X) • 0.64 mm lead diameter (C35X) C0G (NP0) Dielectric • -55°C to +125°C operating temperature range • Commercial and Automotive (AEC-Q200) Grades available • No piezoelectric noise • Low ESR and ESL • High thermal stability • High ripple current capability • Preferred capacitance solution at line frequencies and into the MHz range • No capacitance change with respect to applied rated DC voltage • Negligible capacitance change with respect to temperature from -55°C to +125°C • No capacitance decay with time X7R Dielectric • -55°C to +125°C operating temperature range • Commercial and Automotive (AEC-Q200) Grades available • Temperature stable dielectric Z5U Dielectric • +10°C to +85°C operating temperature range
C316	0.150 x 0.230 x 0.100	0.10			
C317	0.150 x 0.230 x 0.100	0.20			
C318	0.150 x 0.235 x 0.100	0.20			
C320	0.200 x 0.260 x 0.125	0.10	C0G 1.0 – 3,300 pF X7R 10 pF – 0.047 µF	500 – 2,000	
C321	0.200 x 0.260 x 0.125	0.25			
C322	0.200 x 0.260 x 0.125	0.20			
C323	0.200 x 0.320 x 0.125	0.20			
C324	0.200 x 0.260 x 0.125	0.10			
C325	0.200 x 0.320 x 0.125	0.20			
C326	0.200 x 0.350 x 0.125	0.10			
C327	0.200 x 0.350 x 0.125	0.20			
C328	0.200 x 0.325 x 0.125	0.20			
C330	0.300 x 0.360 x 0.150	0.20	C0G 10 – 6,800 pF X7R 10 pF – 0.22 µF	500 – 3,000	
C331	0.300 x 0.360 x 0.150	0.25			
C333	0.300 x 0.390 x 0.150	0.20			
C335	0.300 x 0.420 x 0.150	0.20			
C336	0.300 x 0.450 x 0.150	0.20			
C340	0.400 x 0.460 x 0.150	0.20	C0G 1.0 pF – 0.015 µF X7R 1,200 pF – 0.68 µF	500 – 3,000	
C346	0.400 x 0.590 x 0.150	0.20			
C350	0.500 x 0.560 x 0.200	0.40	C0G 100 pF – 0.39 µF X7R 6,800 pF – 0.82 µF	500 – 3,000	
C356	0.500 x 0.670 x 0.200	0.40			

Ceramic Capacitors
The Capacitance Company KEMET CHARGED®

High Voltage Through-Hole Multilayer Ceramic Chip Capacitors (THD MLCCs) (cont.)

High Voltage Goldmax Series • Radial • Conformally Coated • X7R Dielectric • 25 – 500 VDC (Commercial Grade)

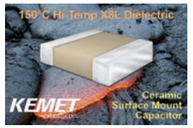
Series Code	Dimensions L x H x T (inches)	Lead Spacing (inches)	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
C617	0.250 x 0.220 x 0.200	0.170	C0G 1.0 pF – 0.015 µF X7R 1,200 pF – 0.68 µF	500 – 3,000 500 – 2,000	General (All Dielectrics) • Meets MIL-PRF-49467 lead spacing requirements • Pb-Free and RoHS compliant (excluding SnPb lead material option) • DC voltage ratings of 500 V, 1 KV, 1.5 KV, 2 KV, 2.5 KV and 3 KV • Available capacitance tolerances of ±0.25 pF, ±0.5 pF, ±1 pF, ±2 pF, ±5%, ±10% and ±20% • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated lead material allowing for excellent solderability • SnPb plated lead material option available upon request (60/40) • Several lead configuration options available (See catalog for details) • 0.64 mm lead diameter • Group A inspection per MIL-PRF-49467 available upon request C0G (NP0) Dielectric • -55°C to +125°C operating temperature range • Commercial and Automotive (AEC-Q200) Grades available • No piezoelectric noise • Low ESR and ESL • High thermal stability • High ripple current capability • Preferred capacitance solution at line frequencies and into the MHz range • No capacitance change with respect to applied rated DC voltage • Negligible capacitance change with respect to temperature from -55°C to +125°C • No capacitance decay with time X7R Dielectric • -55°C to +125°C operating temperature range • Commercial and Automotive (AEC-Q200) Grades available • Temperature stable dielectric
C622/C623	0.320 x 0.280 x 0.250	0.220	C0G 1.0 pF – 0.015 µF X7R 1,200 pF – 0.68 µF	500 – 3,000	
C627/C628	0.370 x 0.300 x 0.250	0.275	C0G 1.0 pF – 0.015 µF X7R 1,200 pF – 0.68 µF		
C630/C631	0.450 x 0.220 x 0.200	0.300	C0G 1.0 pF – 0.015 µF X7R 1,200 pF – 0. 68 µF		
C637/C638	0.470 x 0.400 x 0.270	0.375	C0G 1.0 pF – 0.015 µF X7R 1,200 pF – 0.68 µF		
C640/C641	0.550 x 0.280 x 0.250	0.400	C0G 1.0 pF – 0.015 µF X7R 1,200 pF – 0.68 µF		
C642/C643	0.500 x 0.560 x 0.200	0.400	C0G 1.0 pF – 0.015 µF X7R 1,200 pF – 0.68 µF		
C647/C648	0.570 x 0.500 x 0.270	0.475	C0G 1.0 pF – 0.015 µF X7R 1,200 pF – 0.68 µF		
C657/C658	0.670x 0.600 x 0.270	0.575	C0G 1.0 pF – 0.015 µF X7R 1,200 pF – 0.68 µF		
C667/C668	0.770 x 0.720 x 0.270	0.675	C0G 1.0 pF – 0.015 µF X7R 1,200 pF – 0.68 µF		

High Voltage • Radial • C0G (NP0) & X7R Dielectric • 500 –10 K VDC (Robust • MIL Screened)

Style/Case Size	Max Temp.	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
HV10 – HV16	+200°C	C0G 15 pF – 0.015 µF X7R 820 pF – 1.0 µF	500 – 4,000	• Ceramic high voltage • High temperature (+200°C) • Ideal for industrial, down hole, harsh environments • Radial
VCR/VRR	+200°C	C0G 10 pF – 0.047 µF X7R 680 pF – 1.2 µF	500 – 5,000	• High voltage • Ceramic cased high temperature (+200°C) • Radial
HV20 – HV36	+125°C	C0G 10 pF – 0.33 µF X7R 680 pF – 5.6 µF	500 – 10,000	• High voltage (125°C X7R, C0G) • Ceramic conformal coated • Radial
HV60 – HV66	+125°C	C0G 15 pF – 0.047 µF X7R 820 pF – 0.47 µF	600 – 5,000	• High voltage • Ceramic conformal coated (+125°C) • MIL-PRF-49467 equivalent • Radial
HS20 – HS36	+125°C	C0G 15 pF – 0.18 µF X7R 820 pF – 5.6 µF	500 – 10,000	• High voltage • Ceramic conformal coated (+125°C) • Space Quality • Radial

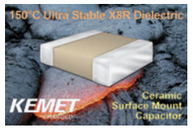
High Temperature Surface Mount Multilayer Ceramic Chip Capacitors (SMD MLCCs)

High Temperature (150°C) • X8L Dielectric • 10 – 50 VDC (Commercial & Automotive Grade)



Size Code EIA/Metric	Max Temp.	Capacitance Range	Voltage Range (VDC)	Benefits
0402/1005	150°C	0.012 – 0.047 µF	10 – 25	• -55°C to +150°C operating temperature range • Available with Flexible Termination System (FT-CAP) for 0603 – 1210 case sizes • Pb-Free and RoHS compliant (excluding SnPb end metallization option) • Available capacitance tolerances of ±5%, ±10% and ±20% • Commercial and Automotive Grades available • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated end metallization allowing for excellent solderability • SnPb plated end metallization available upon request (5% min)
0603/1608		0.047 – 0.22 µF	10 – 50	
0805/2012		0.15 – 1.0 µF	10 – 50	
1206/3216		0.47 – 4.7 µF	10 – 50	
1210/3225		0.39 – 10 µF	10 – 50	

High Temperature (150°C) • Ultra-Stable X8R Dielectric • 25 – 100 VDC (Commercial & Automotive Grade)



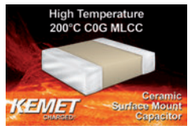
Size Code EIA/Metric	Max Temp.	Capacitance Range	Voltage Range (VDC)	Benefits
0402/1005	150°C	100 – 1,500 pF	25 – 100	• -55°C to +150°C operating temperature range • Pb-Free and RoHS compliant (excluding SnPb end metallization option) • Available capacitance tolerances of ±1%, ±2%, ±5%, ±10% and ±20%, • Extremely low ESR and ESL • High thermal stability • High ripple current capability • No capacitance change applied rated DC voltage • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated end metallization that allowing for excellent solderability • SnPb plated end metallization available upon request (5% min)
0603/1608		430 pF – 0.01 µF	25 – 100	
0805/2012		2,200 pF – 0.033 µF	25 – 100	
1206/3216		6,800 pF – 0.1 µF	25 – 100	
1210/3225		0.012 – 0.18 µF	25 – 100	
1812/4532		0.015 – 0.22 µF	50 – 100	

Ceramic Capacitors

High Temperature Surface Mount Multilayer Ceramic Chip Capacitors (SMD MLCCs) (cont.)

High Temperature (200°C) • C0G Dielectric • 10 – 200 VDC (Industrial Grade)

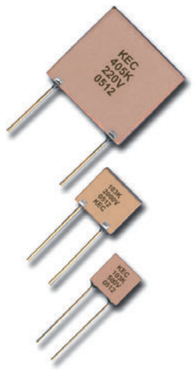
200°C



Size Code EIA/Metric	Max Temp.	Capacitance Range	Voltage Range (VDC)	Benefits
0402/1005	200°C	0.5 – 1,500 pF	10 – 100	• -55°C to +200°C operating temperature range • RoHS compliant (excluding SnPb end metallization option) • Available capacitance tolerances of ±0.25 pF, ±0.5 pF, ±1%, ±2%, ±5%, ±10% and ±20% • No piezoelectric noise • Extremely low ESR and ESL • High thermal stability • High ripple current capability • Preferred capacitance solution at line frequencies and into the MHz range • No capacitance change with respect to applied rated DC voltage • Negligible capacitance change with respect to temperature from -55°C to +200°C • No capacitance decay with time • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated end metallization allowing for excellent solderability • SnPb plated end metallization available upon request (5% min)
0603/1608		0.5 pF – 0.01 µF	10 – 200	
0805/2012		0.5 pF – 0.047 µF	10 – 200	
1206/3216		1.0 pF – 0.1 µF	10 – 200	
1210/3225		1.0 pF – 0.22 µF	10 – 200	
1812/4532		0.015 – 0.22 µF	50 – 100	
2220/5650		0.47 µF	50	

High Temperature Through-Hole Multilayer Ceramic Capacitors (THD MLCCs)

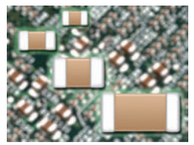
High Temperature (200°C – 260°C) • Axial & Radial • C0G (NP0) & X7R Dielectrics • 50 – 5 K VDC (Robust / MIL Screened)



Style/Case Size	Max Temp.	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
HT05 – HT16 HP05 – HP16	200°C	C0G 22 pF – 0.1 µF X7R 1,000 pF – 4.7 µF	100, 200	• -55°C to +200°C operating temperature range • Ideal for industrial, down hole and harsh environments • Axial and radial form factors • Conformal coated option available (HP Series only)
HV10 – HV16		C0G 15 pF – 0.015 µF X7R 820 pF – 1.0 µF	500 – 4,000	• -55°C to +200°C operating temperature range • High temperature (+200°C) • Ideal for industrial, down hole and harsh environments • Radial form factor
ACR/ARR/ ACA/ARA		C0G 10 pF – 0.15 µF X7R 1,000 pF – 4.7 µF	50 – 100	• -55°C to +200°C operating temperature range • Ideal for down hole, jet engine controls and geophysical pressure probes • Axial and radial form factors
VCR/VRR		C0G 10 pF – 0.047 µF X7R 680 pF – 1.2 µF	500 – 5,000	• -55°C to +200°C operating temperature range • Ideal for high voltage power supplies, high voltage meter • Multiplier and RF circuits • Radial form factor
TCR/TRR/ TCA/TRA	260°C	C0G 10 pF – 0.15 µF X7R 1,000 pF – 3.9 µF	50 – 100	• -55°C to +260°C operating temperature range • Ideal for down hole, jet engine controls and geophysical pressure probes • Axial and radial form factors

Military Grade Surface Mount Multilayer Ceramic Chip Capacitors (SMD MLCCs)

MIL-PRF-55681 • Established Reliability • BP (NP0) & BX (X7R) Dielectrics • 50 – 100 VDC (Military Grade)



Size Code EIA	Style	Dielectric	Capacitance Range	Voltage Range (VDC)	Benefits
0805	CDR01 CDR31	BP, BX	10 pF – 0.018 μF	50 – 100	• -55°C to +125°C operating temperature range • Established reliability • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated end metallization option available • SnPb plated (70/30) end metallization option available • SnPb coated (60/40) end metallization option available
1206	CDR32	BP, BX	1.0 pF – 0.039 μF	50 – 100	
1210	CDR33	BP, BX	1,000 pF – 0.1 μF	50 – 100	
1805	CDR02	BP, BX	220 pF – 0.022 μF	50 – 100	
1808	CDR03	BP, BX	330 pF – 0.068 μF	50 – 100	
1812	CDR04 CDR34	BP, BX	1,200 pF – 0.18 μF	50 – 100	
1825	CDR05 CDR35	BP, BX	3,900 pF – 0.470 μF	50 – 100	
2225	CDR06	BP, BX	6,800 pF – 0.47 μF	50 – 100	

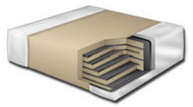
GR900 • High Reliability • BP (NP0) & BX (X7R) Dielectrics • 16 – 200 VDC (Military Grade)

Size Code EIA	Style	Dielectric	Capacitance Range	Voltage Range (VDC)	Benefits
0504	C0504	BP, BX	10 – 6800 pF	50 – 200	• -55°C to +125°C operating temperature range • High reliability • Group A & B (optional) testing • In process inspection (per MIL-PRF-123) • Non-polar device, minimizing installation concerns • 100% pure matte tin plated end metallization option available • SnPb plated (70/30) end metallization option available • SnPb coated (60/40) end metallization option available • Gold plated end metallization option available
0805	C0805	BP, BX	10 pF – 0.1 μF	25 – 200	
1005	C1005	BP, BX	1.0 pF – 0.022 μF	50 – 200	
1206	C1206	BP, BX	1.0 pF – 0.15 μF	16 – 200	
1210	C1210	BP, BX	10 pF – 0.47 μF	16 – 200	
1805	C1805	BP, BX	220 pF – 0.047 μF	50 – 200	
1808	C1808	BP, BX	330 pF – 0.1 μF	50 – 200	
1812	C1812	BP, BX	330 pF – 0.18 μF	50 – 200	
1825	C1825	BP, BX	2,700 pF – 0.47 μF	50 – 200	
2225	C2225	BP, BX	2,700 pF – 1.0 μF	50 – 200	

Ceramic Capacitors
The Capacitance Company KEMET CHARGED®

Military Grade Surface Mount Multilayer Ceramic Chip Capacitors (SMD MLCCs) (cont.)

MIL-PRF-123 • High Reliability • BR (X7R) & BX (X7R) Dielectrics • 6.3 – 200 VDC (Military Grade & Space Quality)

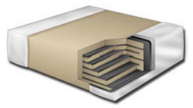


Size Code EIA	Style	Dielectric	Capacitance Range	Voltage Range (VDC)	Benefits
0805	CKS51	BP, BX	1.0 pF – 0.018 μF	50 – 100	• -55°C to +125°C operating temperature range • High reliability • Non-polar device, minimizing installation concerns • Tin coated (Sn60) end metallization option available • SnPb plated (70/30) end metallization option available • Gold plated end metallization option available
1206	CKS55	BP, BX	1.0 pF – 0.039 μF	50 – 100	
1210	CKS52	BP, BX	300 pF – 0.1 μF	50 – 100	
1808	CKS53	BP, BX	300 pF – 0.1 μF	50 – 100	
1812	CKS56	BP, BX	1,200 pF – 0.18 μF	50 – 100	
1825	CKS57	BP, BX	3,900 pF – 0.47 μF	50 – 100	
2225	CKS54	BP	1,100 pF– 1.0 μF	50	

DSCC Approved • High Reliability • BP (C0G/NP0), BR (X7R) & BX (X7R) Dielectrics • 6.3 – 200 VDC (Military Grade)

Size Code EIA	Style	Dielectric	Capacitance Range	Voltage Range (VDC)	Benefits
0402	DSCC 03029	BR, BX	100 – 2,200 pF	6.3 – 200	• Defense Supply Center, Columbus approved • Federal Stock Control Number, Cage Code 31433 • Meets US Department of Defense (USDoD) specifications per MIL-PRF-55681 • Meets USDoD standards per MIL-STD-202 & MIL-STD-1285 • High reliability • Non-polar device, minimizing installation concerns
0603	DSCC 03028	BR, BX	100 pF – 0.1 μF	6.3 – 200	
0805	DSCC 05006	BP, BR, BX	1.0 pF – 0.018 μF	10 – 200	
1206	DSCC 05007	BP, BR, BX	1.0 pF – 0.047 μF	10 – 200	
2220	DSCC 91019	BR	0.56 pF – 1.0 μF	25 – 50	

Commercial Off-The-Shelf (COTS) for Higher Reliability Applications • X7R and C0G Dielectrics • 6.3 – 250 VDC (COTS • MIL Screened)



Size Code EIA/Metric	Dimensions L x W (mm)	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
0402/1005	1.0 x 0.5	C0G 0.5 – 2,200 pF X7R 150 pF – 0.1 μF	10 – 100 6.3 – 50	• -55°C to +125°C operating temperature range • Voltage conditioning and post-electrical testing per MIL-PRF-55681, Paragraph 4.8.3.1 • Destructive Physical Analysis (DPA) per EIA-469 • Humidity, steady state, low voltage (85/85) per MIL-STD 202, Method 103, Condition A • Certificate of compliance • RoHS compliant (excluding SnPb end metallization option) • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated end metallization allowing for excellent solderability • SnPb plated end metallization option available upon request (5% min)
0603/1608	1.6 x 0.8	C0G 0.5 pF – 0.015 μF X7R 180 pF – 0.47 μF	10 – 200 6.3 – 200	
0805/2012	2.0 x 1.25	C0G 0.5 pF – 0.047 μF X7R 180 pF – 2.2 μF	10 – 200 6.3 – 250	
1206/3216	3.2 x 1.6	C0G 10 pF – 0.1 μF X7R 1,000 pF – 10 μF	10 – 200 6.3 – 250	
1210/3225	3.2 x 2.5	C0G 10 pF – 0.022 μF X7R 2,200 pF – 22 μF	10 – 200 6.3 – 250	
1808/4520	4.5 x 3.2	X7R 4,700 pF – 0.18 μF	50 – 200	
1812/4532	4.5 x 3.2	C0G 470 pF – 0.22 μF X7R 6,800 pF – 10 μF	50 – 200 25 – 250	
1825/4564	4.5 x 6.4	C0G 3,900 pF – 0.027 μF X7R 0.022 – 2.2 μF	50 – 200 25 – 250	
2220/5650	5.6 x 5.0	C0G 6,800 pF – 0.47 μF X7R 0.82 – 22 μF	50 – 200 25 – 250	
2225/5664	5.6 x 6.3	C0G 4,700 pF – 0.033 μF X7R 0.047 – 2.2 μF	50 – 200 50 – 250	

Military Grade Surface Mount Multilayer Ceramic Chip Capacitors (SMD MLCCs) (cont.)

Large Chip • High Voltage • C0G (NP0) & X7R Dielectrics • 500 – 5 K VDC (Robust • MIL Screened)

Case Size (EIA)	Dimensions (mm)	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
1515	3.81 x 3.81	C0G 12 – 4,700 pF X7R 270 pF – 0.1 µF	500 – 3,000 500 – 2,000	• -55°C to +125°C operating temperature range • DC voltage ratings of 500 V, 1 KV, 2 KV, 3 KV, 4 KV and 5 KV • Available capacitance tolerances of ±5%, ±10%, ±20%, 0/+100% and -20%/+80% • Low ESR and ESL • Non-polar device, minimizing installation concerns • Available with screening to MIL-PRF-49467, Group A & B • Several end metallization options available (See catalog for details) • Infared or vapor phase soldering process recommended
1812	4.57 x 3.05	C0G 12 – 2,700 pF X7R 270 pF – 0.056 µF	500 – 3,000 500 – 2,000	
1825	4.57 x 6.35	C0G 22 – 8,200 pF X7R 560 pF – 0.15 µF	500 – 3,000	
2020	5.08 x 5.08	C0G 22 – 8,200 pF X7R 560 pF – 0.18 µF	500 – 3,000	
2225	5.59 x 6.35	C0G 27 pF – 0.012 µF X7R 680 pF – 0.22 µF	500 – 3,000	
2520	6.35 x 5.08	C0G 27 pF – 0.01 µF X7R 680 pF – 0.22 µF	500 – 4,000 500 – 3,000	
3333	8.38 x 8.38	C0G 27 pF – 0.015 µF X7R 1,200 pF – 0.82 µF	500 – 4,000 500 – 3,000	
3530	8.89 x 7.62	C0G 27 pF – 0.022 µF X7R 270 pF – 0.56 µF	500 – 4,000	
4040	10.2 x 10.2	C0G 18 pF – 0.039 µF X7R 470 pF – 0.82 µF	500 – 4,000	
4540	11.43 x 10.2	C0G 18 pF – 0.056 µF X7R 470 pF – 1.2 µF	500 – 5,000	
5440	13.7 x 10.2	C0G 27 pF – 0.082 µF X7R 680 pF – 1.5 µF	500 – 4,000	
5550	14.0 x 12.7	C0G 27 pF – 0.068 µF X7R 680 pF – 1.8 µF	500 – 5,000	
6560	16.5 x 15.2	C0G 47 pF – 0.1 µF X7R 1,200 pF – 2.2 µF	500 – 5,000	

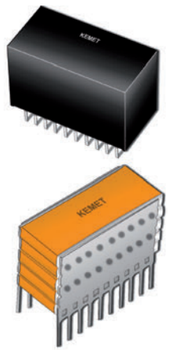
Military Grade Surface Mount Multilayer Ceramic Chip Capacitors (SMD MLCCs) (cont.)

KPS HV • Leadframe Mounted • High Voltage • C0G (NP0) & X7R Dielectrics • 500 – 5 K VDC (Robust • MIL Screened)

Series Code	Dimensions (mm)	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
SM20	3.81 x 3.81	C0G 12 – 4,700 pF X7R 270 pF – 0.082 µF	500 – 3,000 500 – 2,000	• -55°C to +125°C operating temperature range • DC voltage ratings of 500 V, 1 KV, 2 KV, 3 KV, 4 KV and 5 KV • Available capacitance tolerances of ±5%, ±10%, ±20%, +100, -0% and +80%, -20% • "J" & "L" lead configurations available • Reduced microphonics • Reliable and robust termination system • Advanced protection against thermal and mechanical stress • Improved flex performance • Reduces audible, microphonic noise • Non-polar device, minimizing installation concerns • Available with screening to MIL-PRF-49467, Group A & B • Several end metallization options available (See catalog for details)
SM21	5.08 x 5.08	C0G 22 – 8,200 pF X7R 560 pF – 0.18 µF	500 – 3,000 500 – 2,000	
SM22	6.35 x 5.08	C0G 27 pF – 0.01 µF X7R 680 pF – 0.22 µF	500 – 3,000	
SM23	8.89 x 7.62	C0G 27 pF – 0.022 µF X7R 270 pF – 0.56 µF	500 – 4,000	
SM24	11.43 x 10.2	C0G 18 pF – 0.056 µF X7R 470 pF – 1.2 µF	500 – 5,000	
SM25	14.0 x 12.7	C0G 27 pF – 0.082 µF X7R 470 pF – 1.8 µF	500 – 5,000	
SM26	16.5 x 15.2	C0G 47 pF – 0.1 µF X7R 1,200 pF – 2.7 µF	500 – 5,000	
SM30	7.62 x 3.81	C0G 10 pF – 0.015 µF X7R 150 pF – 0.22 µF	500 – 4,000	
SM31	10.2 x 5.08	C0G 10 pF – 0.027 µF X7R 270 pF – 0.39 µF	500 – 5,000	
SM33	17.08 x 7.62	C0G 12 pF – 0.12 µF X7R 220 pF – 1.5 µF	500 – 7,000	
SM34	22.9 x 10.2	C0G 22 pF – 0.15 µF X7R 470 pF – 1.5 µF	500 – 10,000	
SM35	27.9 x 12.7	C0G 33 pF – 0.22 µF X7R 820 pF – 3.9 µF	500 – 10,000	
SM36	33.0 x 15.2	C0G 56 pF – 0.33 µF X7R 1,200 pF – 5.6 µF	500 – 10,000	

Military Grade Through-Hole Multilayer Ceramic Capacitors (THD MLCCs)

KPS MIL • MIL-PRF-49470 • High Reliability • BX (X7R), BR (X7R) & BQ (X7R) Dielectrics • 50 – 500 VDC (Military & Space Grade)



Case Code	Military Equivalent Styles	Lead Type	Dielectric	Capacitance Range	Voltage Range (VDC)	Benefits
3	M49470	Straight Formed "J" Formed "L"	BX, BR, BQ	2.2 – 47 µF	50 – 500	• 49470 B-Level reliability • 49470 T-Level Reliability available (Space Grade) • Commercial Grade available • -55°C to +125°C operating temperature range • Reliable and robust termination system • Higher capacitance in the same footprint • Potential board space savings • Advanced protection against thermal and mechanical stress • Reduces audible, microphonic noise • Extremely low ESR and ESL • Encapsulated or unencapsulated • Non-polar device, minimizing installation concerns • SnPb coated (60/40) lead material • DSCC 87106 equivalent available upon request
4				0.82 – 15 µF		
5				0.15 – 5.6 µF		

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Military Grade Through-Hole Multilayer Ceramic Capacitors (THD MLCCs)

Axial • MIL-PRF-20 • Established Reliability • CG (C0G/NP0) Dielectric • 50 – 200 VDC (Military Grade)

Series Code	Military Equivalent Styles	Dimensions L x D (inches)	Dielectric	Capacitance Range	Voltage Range (VDC)	Benefits
C114G	CC75, CCR75	0.16 x 0.09	CG	1.0 – 680 pF	50 – 200	• -55°C to +125°C operating temperature range • Ultra-stable C0G (NP0) Dielectric • Established reliability • Non-polar device, minimizing installation concerns • SnPb coated (60/40) lead material • Failure rating screening available 0.001 to 1.0%
C124G	CC76, CCR76	0.25 x 0.09		82 – 1,000 pF	50 – 200	
C192G	CC77, CCR77	0.39 x 0.14		150 – 5,600 pF	50 – 200	
C202G	CC78, CCR78	0.50 x 0.25		820 pF – 0.027 µF	50 – 200	
C222G	CC79, CCR79	0.69 x 0.35		3,900 pF – 0.082 µF	50 – 200	

Radial • MIL-PRF-20 • Established Reliability • CG (C0G/NP0) Dielectric • 50 – 200 VDC (Military Grade)

KEMET Series	Military Equivalent Styles	Dimensions H x L x W (inches)	Dielectric	Capacitance Range	Voltage Range (VDC)	Benefits
C052G/ C056G	CC05, CCR05	0.19 x 0.19 x 0.09	CG	1.0 – 3,300 pF	50 – 200	• -55°C to +125°C operating temperature range • Ultra-stable C0G (NP0) Dielectric • Established reliability • Non-polar device, minimizing installation concerns • SnPb coated (60/40) lead material • Failure rating screening available 0.001 to 1.0% • Lead spacings 0.20 – 0.40"
C062G/ C066G	CC06, CCR06	0.29 x 0.29 x 0.09		360 pF – 0.018 µF	50 – 200	
C512G	CC07, CCR07	0.48 x 0.48 x 0.14		2,200 pF – 0.10 µF	50 – 200	
C522G	CC08, CCR08	0.48 x 0.48 x 0.24		3,900 pF – 0.068 µF	50 – 200	

Radial • GR900 • High Reliability • CG (C0G/NP0), BP (C0G/NP0) & BX (X7R) Dielectrics • 50 – 200 VDC (Military Grade)

KEMET Series	Dimensions H x L x W (inches)	Dielectric	Capacitance Range	Voltage Range (VDC)	Benefits
C052B	0.19 x 0.19 x 0.09	CG, BP BX	1.0 – 6,800 pF 470 – 0.15 µF	50 – 200	• -55°C to +125°C operating temperature range • High reliability • Solder coated copper, lead material standard • Group A & B (optional) testing • In process inspection (per MIL-PRF-123) • Non-polar device, minimizing installation concerns • Lead spacings 0.20 – 0.40"
C062B	0.29 x 0.29 x 0.09	CG, BP BX	270 pF – 0.024 µF 3,300 pF – 1.0 µF	50 – 200	
C512B	0.48 x 0.48 x 0.14	CG, BP BX	2,000 pF – 0.15 µF 0.039 – 3.3 µF	50 – 200	

Radial • MIL-PRF-123 • High Reliability •BP (C0G/NP0) & BX (X7R) Dielectrics • 50 – 200 VDC (Military Grade)

KEMET Series	Military Equivalent Styles	Dimensions H x L x W (inches)	Dielectric	Capacitance Range	Voltage Range (VDC)	Benefits
C052Z	CKS05	0.19 x 0.19 x 0.09	BP BX	4.7 – 3,300 pF 270 pF – 0.01 µF	50 – 200	• -55°C to +125°C operating temperature range • High reliability • Solder coated copper, lead material standard • Non-polar device, minimizing installation concerns • Lead spacings 0.20 – 0.40"
C062Z	CKS06	0.29 x 0.29 x 0.09	BP BX	270 pF – 0.018 µF 5,600 pF – 1.0 µF	50 – 200	
C512Z	CKS07	0.48 x 0.48 x 0.14	BP BX	2,200 pF – 0.1 µF 0.056 – 1.0 µF	50 – 200	

Ceramic Capacitors
The Capacitance Company KEMET CHARGED.

Military Grade Through-Hole Multilayer Ceramic Capacitors (THD MLCCs) (cont.)

Axial • MIL-C-11015 & MIL-PRF-39014 • High Reliability • BX (X7R) & BR (X7R) Dielectrics • 50 – 100 VDC (Military Grade)

KEMET Series	Military Equivalent Styles	Dimensions H x L x W (inches)	Dielectric	Capacitance Range	Voltage Range (VDC)	Benefits
C114K C114T	CK12 (11015) CKR11 (39014	0.16 x 0.09	BX	10 pF – 0.01 µF	50 – 100	• -55°C to +125°C operating temperature range • High reliability • Non-polar device, minimizing installation concerns • SnPb coated (60/40) lead material • Failure rating screening available 0.001 to 1.0%
C124K C124T	CK13 (11015) CKR12 (39014)	0.25 x 0.09	BX	5,600 pF – 0.047 µF	50 – 100	
C192K C192T	CK14 (11015) CKR14 (39014	0.39 x 0.14	BX	0.012 – 0.27 µF	50 – 100	
C202K C202T	CK15 (11015) CKR15 (39014)	0.50 x 0.25	BX, BR	0.056 – 1.0 µF	50 – 100	
C222K C222T	CK16 (11015) CKR16 (39014)	0.69 x 0.35	BR	0.47 – 3.3 µF	50 – 100	

Radial • MIL-C-11015 & MIL-PRF-39014 • High Reliability • BX (X7R) Dielectric • 50 – 200 VDC (Military Grade)

Series Code	Military Equivalent Styles	Dimensions H x L x W (inches)	Dielectric	Capacitance Range	Voltage Range (VDC)	Benefits
C052K / C056K C052T / C056T	CK05 (11015) CKR05 (39014)	0.19 x 0.19 x 0.09	BX	10 pF – 0.1 µF	50 – 200	• -55°C to +125°C operating temperature range • High reliability • Non-polar device, minimizing installation concerns • SnPb coated (60/40) lead material • Failure rating screening available 0.001 to 1.0% • Lead spacings 0.20 – 0.40"
C062K / C066K C062T / C066T	CK06 (11015) CKR06 (39014)	0.29 x 0.29 x 0.09	BX	1,200 pF – 1.0 µF	50 – 200	

RF and Microwave Surface Mount Multilayer Ceramic Chip Capacitors (SMD MLCCs)

CBR Series • C0G (NP0) Dielectric • Ultra High Q • Low ESR • 6.3 – 250 VDC

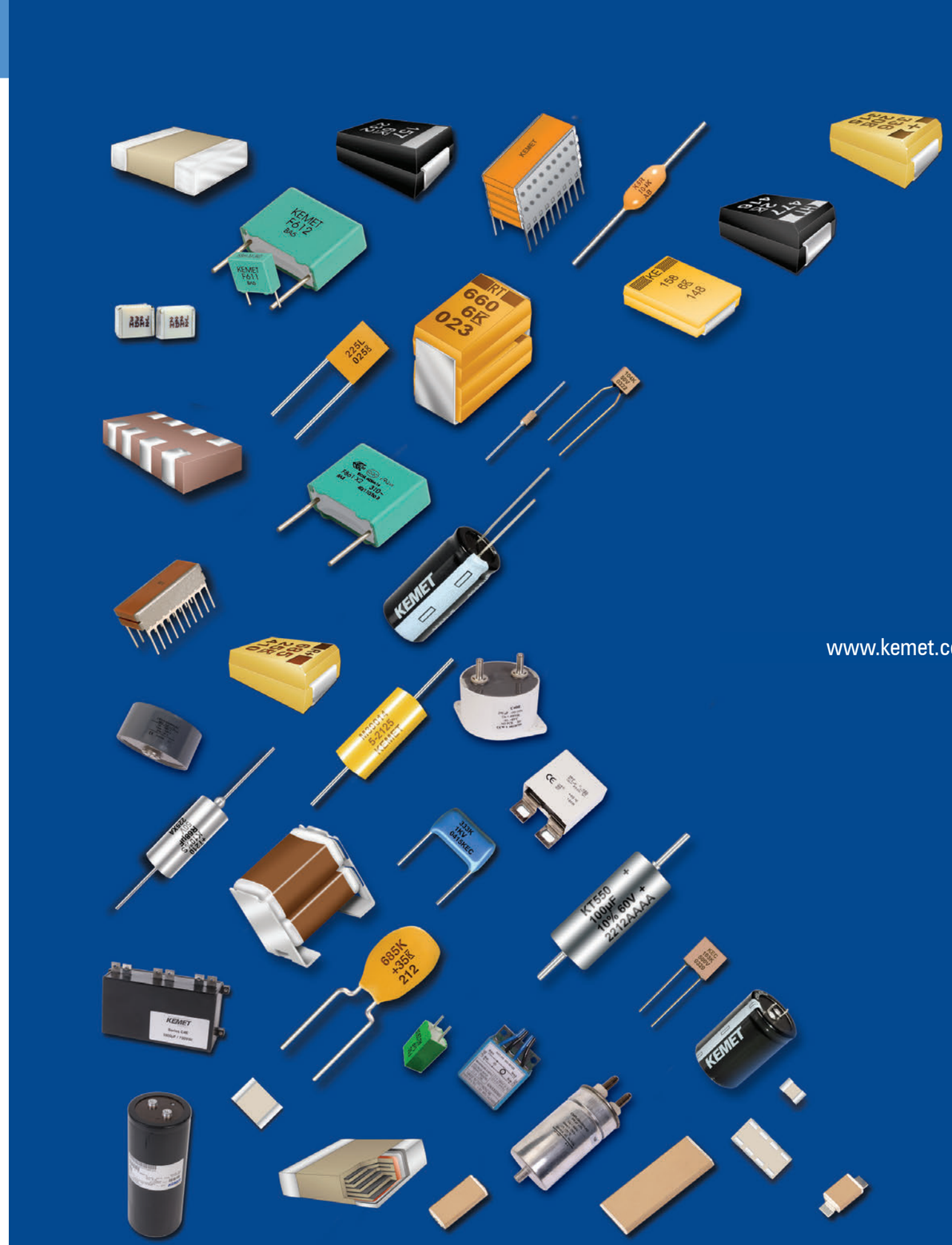
Size Code (EIA/Metric)	Dielectric/ Capacitance Range	Voltage Range (VDC)	Benefits
0201/0603	0.1 – 33 pF 0.1 – 18pF	6.3 – 10 25	• -55°C to +125°C operating temperature range • Ultra high Q • Base metal electrode (BME) dielectric system • Pb-Free and RoHS compliant • Available capacitance tolerances of ±0.05 pF, ±0.1 pF, ±0.25 pF, ±0.5 pF, ±1%, ±2%, ±5% and ±10% • No piezoelectric noise • Low ESR • High thermal stability • No capacitance change with respect to applied rated DC voltage • Negligible capacitance change with respect to temperature • No capacitance decay with time • Non-polar device, minimizing installation concerns • 100% pure matte tin-plated termination finish allowing for excellent solderability
0402/1005	0.1 – 22 pF 0.1 – 10 pF	50 100	
0603/1608	0.3 – 47 pF	50 – 250	
0805/2012	0.3 – 100 pF	50 – 250	

Surface Mount Inductors

Application	Construction	Series	Sizes	Inductance nH	Current Rating mA	Benefits
Filtering on Signal Line	Wire Wound	L-SWS	0806	1.0 – 100	80 – 610	• High Q, high inductance values narrow tolerance achieved with bottom surface electrodes
	Multilayer	L-SMS	0402 – 1206	0.047 – 33	1 – 300	• High Q, low inductance values, small case sizes
Noice Reduction on Power Supply Line	Wire Wound	L-PWS	0805 – 1207	1.0 – 1,000	15 – 1,075	• Available with super low DC resistance and high current ratings
		L-PWI	0805 – 1007	1.0 – 680	45 – 775	• High current
		L-PWF	0603	1.0 – 47	35 – 230	• High efficiency design with bottom suface electrodes
	Multilayer	L-PMS	0603, 0805	0.10 – 10	50 – 500	• Multilayer block structure yields higher reliability
Power Inductor for Switching Regulator	Wire Wound	L-DWL	0805	1.0 – 47	100 – 620	• Low profile, high current
		L-DWF	0603	1.0 – 47	50 – 290	• High efficiency design with bottom surface electrodes
		L-DWS	0805 – 1007	1.0 – 1,000	25 – 1,200	• Low DC resistance
		L-DWI	0805 – 1210	1.0 – 100	65 – 1,440	• High current
		L-DWD	3010 – 10050	0.9 – 220	220 – 9,000	• High current, low profile, original magnetically shielded, shock-proof structure
	Multilayer	L-DMI	1008, 1206	1.0 – 4.7	700 – 1,300	• Low profile, low DC resistance
Radio Frequency Inductor	Multilayer	L-RMS	0201 – 0805	1.0 – 470	40 – 300	• Designed for application above 100 MHz, low inductance values, excellent Q and SRF properties

Ferrite Beads

Application	Construction	Series	Sizes	Impedance Ω	Current Rating mA	Benefits
EMI Suppression (Ferrite Beads)	Wire Wound	Z-PWS	0603 – 1806	8 – 100	2,000 – 6,000	• High current, several material combinations available to target specific frequency ranges
		Z-PWZ	0603 – 1812	30 – 2,000	400 – 4,000	• High current and impedance
	Multilayer	Z-SMS	0201 – 0805	10 – 2,500	100 – 1,500	• Wide range of material types and broad impedance range targeted for signal lines
		Z-PMS	0402 – 0805	33 – 390	1,000 – 4,000	• For power lines, low DC resistance



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Why *The Capacitance Company* is also the "Easy-To-Buy-From" company.

When you choose KEMET, you'll enjoy a level of responsiveness you just won't get from any other component manufacturer. You simply won't find an electronic components manufacturer more passionate about customer service. Our innovative service offerings and superior localized support are known throughout the industry, powered by our global, customer-focused sales organization and worldwide logistics capabilities. We're 100% committed to serving any customer, anywhere, and meeting customer needs when they need to be met.

Whether you need rush samples, technical assistance, in-person consultations or accelerated custom design, design collaboration and prototype services, we have a solution. If it's anything to do with capacitance, we can help – and help fast.

EMI Filters

As electronics become pervasive in virtually all aspects of our lives, the generation of electromagnetic noise between equipment can be problematic. In order to maintain complete system functionality, it is increasingly important to limit these types of interference. KEMET's complete line of EMI filtering products address EMI issues across a multitude of applications.

Many geographical regions regulate equipment testing for EMI noise immunity and generation. These tests are often mandatory before the final product can be released into the marketplace. The permitted noise levels are, in such cases, clearly defined in international standards. If the product cannot meet the requirements, it is in often necessary to add an EMI filter to the design.

EMI filters consist of combinations of capacitive and inductive elements that will reduce the disturbance levels in the frequency band specified by the design. As The Capacitance Company, KEMET has an exceptional advantage of selecting capacitors of superior quality and functionality to best serve its EMI filter products.

KEMET offers a broad portfolio of EMI filters to accommodate a variety of applications:

Power and Small Signal Feed-Through Filters
- A wide range of current ratings from 0.1A to 800A in various configurations of capacitors and inductors
- Excellent stability properties and attenuation up to the GHz region
- Applications include screen rooms, power supplies, telecom systems, medical and military equipment

General Purpose Filters
- A variety of PCB mount and spade lug terminated filters for standard line voltage up to 16A
- Various configurations for moderate to high performance attenuation
- Applications include consumer goods, domestic appliances and business equipment, low power switch mode power supplies and digital equipment

Chassis Mount Filters
- Single and three phase filters with and without neutral connection, with various types of screw or flexible lead terminals and different geometries
- Current ratings from 1A to 1600A
- Voltage ratings from 250 VAC to 600 VAC and 1,000 VDC
- Single or multistage for alternative attenuation levels
- Applications include industrial frequency inverters, motor drives, switch mode power supplies and medical systems

Special Purpose Filters
- Power line filters for screen rooms
- DC filters for solar panel arrays
- Three phase filters for inverters for solar panel systems

For applications requiring customized solutions, KEMET's filter research and development team offers complete collaborative design services to meet your specific geometric and electrical specifications.

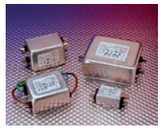
The Capacitance Company KEMET CHARGED.

EMI Filters for Light Fittings

Series	Current Rating (A)	Benefits
FLH...DK	1.4 – 7	• Complies to EN/IEC 60939 • Enables compliance to EN 55015 for light fittings for CE marking • No increase in ground current

Chassis Mount Single Phase Filters

Chassis Mount Single Phase General Purpose Filters



Series	Current Rating (A)	L(mH)	Capacitance x (μF)	Capacitance y (nF)	Benefits
FAI	1 – 30	2x0.5 – 2x10	0.015 – 0.1	2x2.2 – 2x3.2	• Single or multistage chassis mount filters • Metal enclosures, various terminations • Medical versions available • High symmetric and asymmetric attenuation
FAK	3 – 20	2x0.5 – 2x25	0.15 – 0.47	2x1 – 2x5.6	
FAM	1 – 40	2x0.2 – 2x20	0.1 – 1	2x1 – 2x22	
FAR	0.5 – 8.5	2x2 – 2x40	0.15 – 0.47	2x2.2 – 2x3.3	
FAS	1 – 10	2x0.05 – 2x22	0.22 – 1.0	2x4.7 – 2x22	

Chassis Mount Single Phase General Purpose Filters • Multistage

Series	Current Rating (A)	L(mH)	Capacitance x (μF)	Capacitance y (nF)	Benefits
FBK	10 – 30	2x0.6 – 2x0.8	2x0.33 – 2x0.47	2x4.7 – 2x10	• Multistage chassis mount filters • Metal enclosures, various terminations • Medical versions available • General, high and very high performance
FBR	1 – 16	2x2.8 – 2x22	2x0.33 – 2x1	2x4.7	
FBS	1 – 16	2x0.043 – 2x22	2x0.33 – 2x1	2x4.7	

Chassis Mount Single Phase High Performance Filters • Low Profile

Series	Current Rating (A)	L(mH)	Capacitance x (μF)	Capacitance y (nF)	Benefits
FLLE2…FP	10 – 25	4x3 + 2x0.036	1 + 0.47 + 1	4x22	• Very low profile • High attenuation • Multistage design • Residential or light industrial environments • Motor drive

Chassis Mount Single Phase High Performance Filters

Series	Current Rating (A)	L(mH)	Capacitance x (μF)	Capacitance y (nF)	Benefits
FLLE2…AN	8 – 63	2x1 – 2x10	2.2 – 4.4 & 0.68 – 1	2x10 – 2x33 & 2x47 – 2x94	• General applications • High attenuation • Industrial environments • Motor drive
FLLE2…AI,...AS	6 – 20	2x1 – 2x2.4	2x0.68 – 4x2.2	2x4.7 – 2x33	• Very high symmetric and asymmetric attenuation • Single or two stage designs • Frequency converters

Single Phase Power Line Filters

Series	Current Rating (A)	Benefits	Applications
FLLE2…SR	1 – 100	• High attenuation • Multistage design	• Shielded rooms and secure areas • Direct mounting via pipe outlet

Chassis Mount DC EMI Filters for Photovoltaic Inverters

Series	Current Rating (A)	Benefits
FLLE2…PV	25 – 1,600	• Solar panel inverters

EMI Filters
The Capacitance Company KEMET CHARGED.

Chassis Mount Three Phase Filters

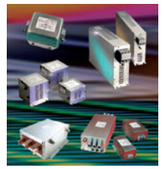
Chassis Mount Three Phase and Neutral Filters • General Purpose

Series	Current Rating (A)	L(mH)	Capacitance x (μF)	Capacitance y (nF)	Benefits
FTR	13 – 100	3x0.1 – 4x0.1	3x0.01 – 3x1	4x4.7 – 4x22	• High symmetric and asymmetric attenuation • Single or two stage designs • Compact design • Screw or flexible lead termination

Chassis Mount Three Phase and Neutral Filters • High Performance

Series	Current Rating (A)	L(mH)	Capacitance x (μF)	Capacitance y (nF)	Benefits
FLLD3…AB	25 – 63	4x0.5 – 4x2	3x2.2	2x15 – 3x4.7	• High symmetric and asymmetric attenuation • Screw or terminal block connectors
FLLD3…AD	16 – 25	4x1.1 – 4x1.8	3x1	15	• High symmetric and asymmetric attenuation • Screw or spade lug terminations • Low profile
FLLD3…AW	3 – 20	4x0.2 – 4x1.5	3x0.1	4.7 – 22	• Good high frequency attenuation • Screw or spade lug terminations • Low profile and compact
FLLD3…BM,...ZS	4 – 25	4x0.04 – 3x4	4x0.04 – 3x13.2	1x22 – 4x33	• High symmetric and asymmetric attenuation • Good broadband attenuation • Compact, low profile

Chassis Mount Three Phase Filters • High Performance • High Voltage



Series	Current Rating (A)	L(mH)	Capacitance x (μF)	Capacitance y (nF)	Benefits
FLLD3…AN,…HN	8 – 450	3x0.075 – 3x7.6	3x2.2 – 3x10 & 3x1 – 3x10	3x10 – 3x280 & 2x1	• 440 – 520 VAC • High attenuation • 600 VAC version • Industrial environments
FLLD3…HNR2	8 – 450				
FLLD3…SN,…SH	8 – 300	0.27 – 0.5/phase	9x1 – 9x22	6x110 – 6x340	• 480 – 520 VAC • Slim design
FLLD3…FP	8 – 17	6x4.5 + 3x0.036	3x1.5 – 9x1	2x0.47	• Low profile
FLLD3…SC	8 – 130	0.27 – 0.5	9x1 – 9x2.2	6x110	• 520 VAC • Slim design
FLLD3…BN	7 – 180	3x0.3 – 3x2	3x5.6 + 3x3.3	1x3.3	• 520 VAC • Slim design • Industrial environments • Motor run

Chassis Mount Three Phase Filters • High Current • High Voltage

Series	Current Rating (A)	Benefits
FLLD3…PV	150 – 2,200	• 690 VAC • Compact high current filter • Alternative energy inverters (wind, solar, etc.)

Chassis Mount Three Phase and Neutral Filters • High Performance, High Voltage

Series	Current Rating (A)	L(mH)	Capacitance x (μF)	Capacitance y (nF)	Benefits
FLLD4…DN	8 – 64	4x1 – 4x1.78	6x2.2 – 6x4.7	2x0.1	• 520 VAC • Low earth leakage • Compact light weight • Screw terminals • Industrial environments

Feed-Through Filters

Power Feed-Through Filters

Series	Current Rating (A)	Applications	Benefits
FLLDH, FLLDU	16 – 300	• Screen rooms • Power supplies • Telecom systems • Medical equipment	• Single line, high performance • PI configuration • Excellent attenuation up to Ghz range • Rugged sealed construction
FLLCC	25 – 800		• Single line, high performance • C configuration

Small Signal Feed-Through Filters

Series	Current Rating (A)	Capacitance	Benefits
AFCL 060	10	1.5 – 47 nF	• CL configuration • Film dielectric • Self-healing characteristics • Excellent temperature stability
AFCL 100	1 – 10	100 – 820 nF	• CL configuration • Film dielectric • Self-healing characteristics • Excellent temperature stability
AFPI 100	0.5 – 10	2x500 nF	• PI configuration • Film dielectric • Self-healing characteristics • Excellent temperature stability
AFPI 160	16	2x2.5 – 2x2,000 nF	
AFPI 190	6 – 30	2x18 – 2x2,000 nF	
AFCC 100	5 – 20	15 – 1,400 nF	• C configuration • Film dielectric • Self-healing characteristics • Excellent temperature stability
AFCC 160	16 – 25	2.5 – 10,000 nF	
AFCC 190	10 – 63	18 – 220 nF	
AKCL 100	0.06 – 15	1.2 μF	• CL configuration • Ceramic dielectric • Hermetic sealing • Other configurations on request

Cylindical Case General Purpose Filters

Series	Current Rating (A)	Capacitance x (μF)	Capacitance y (nF)	Benefits
FNC	10 – 16	0.15 – 0.68	2x4.7 – 2x27	• Suited for consumer goods, appliances, vending machines, etc. • Compact design, spade lug terminations • Push-fit or stud-mount mounting

General Purpose PCB Mount Filters

Series	Current Rating (A)	L(mH)	Capacitance x (μF)	Capacitance y (nF)	Benefits
FAA, FAH	0.5 – 10	2x1 – 2x40	0.1 – 0.68, 2x0.1	2x2.2 — 2x4.7	• Compact PCB design • PCB or spade lug terminations • Medical versions available
FLH	0.5 – 6	2x1 – 2x24	0.033	2x2.5	• Compact PCB design • High performance • Medical versions available
FAMAV	3.3 – 16	2x1, 2x13	0.47	2x1 — 2x6.8	• High performance filter • High RF attenuation • Single or two stage designs • Medical versions available

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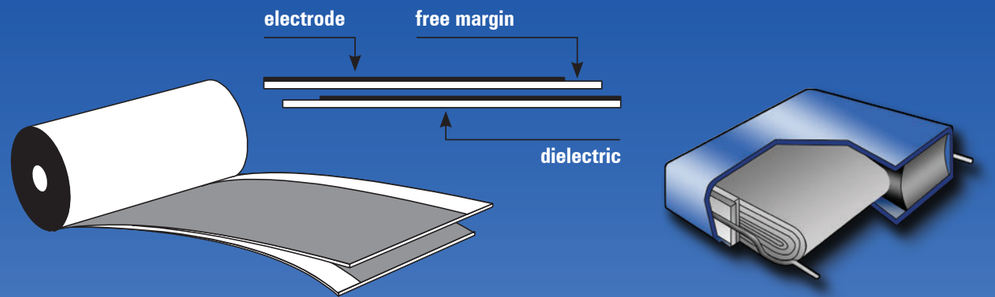
Film Capacitors

With over 50 years of experience manufacturing plastic film capacitors, KEMET also designs and builds custom equipment for film capacitor production, continuously innovating and improving the production capability, quality, and efficiency. Because films are exceptionally thin – less than 1 μm in some cases – extreme precision and process control is required to manufacture quality capacitors for demanding applications.

In the most common type of film capacitor, the electrodes are vacuum deposited, or metallized onto a roll of precision plastic film. The metallization is not deposited near one edge. Two films, one with the unmetallized edge on the left and one on the right, are laid on top of each other and wound into a roll. In many cases, the roll is flattened. Next, several metal layers are sprayed on the ends. These become the electrodes onto which wires are welded before encapsulation.

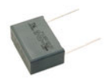
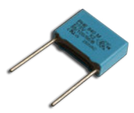
Another variation has the two films in a stack of layers much like a multilayer ceramic capacitor. These can either have leads attached and be encapsulated for through-hole capacitors, or left unencapsulated for surface mount capacitors. KEMET offers several variations on this basic construction using all the commonly available plastic films to meet a broad range of application requirements. KEMET commonly customizes film capacitors for specific applications when a standard part is not available.



Dielectric Material	Abbreviation	Min. film thickness (μm)	Dielectric constant at 1 kHz, +23°C	Operating Temperature (°C) Nomal/(Extended)	Temperature coefficient (ppm/°C)	Dissipation factor at 1 kHz, +23°C	Insulation time constant(s) at +23°C	Dielectric absorption %
Polyester	PET	0.9	3.3	-55 to +100 (+125)	+400 (±200)	0.5%	25,000	0.5
Polyethylene Naphthalate	PEN	1.4	3.0	-55 to +125 (+150)	+200 (±150)	0.4%	25,000	1.2
Polyphenylene Sulfide	PPS	1.2	3.0	-55 to +125 (+175)	0 (-50) -55 to +100 550 (±50) +100 to +150 0 (+50) +150 to +200	0.06%	50,000	0.05
Polypropylene	PP	2.4	2.2	-55 to +105 (+125)	-200 (-100, +50) almost liner	0.03%	100,000	0.01
Paper Impregnated	P	8.0	5.5	-40 to +115	+1200 (±200)	0.8%	15,000	N/A

Properties of common dielectrics used in film capacitors

AC Line EMI Capacitors • Class X

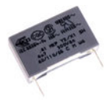
	Series	Class	Capacitance Range	Rated Voltage (VAC)	Benefits
	F861 Polypropylene Metallized Film	X2	0.001 – 45 μF	310	• Test voltage (factory test) 1,900 VDC • Climactic category 40/110/56 • Max. dV/dt 500 V/μS • Lead spacing 7.5, 10, 22.5, 27.5, 37.5, 52.5 mm • Approvals: ENEC, UL, cUL
	F871 Polypropylene Metallized Film	X1	0.001 – 12 μF	330	• Test voltage (factory test) 2,500 VDC • Climactic category 40/110/56 • Max. dV/dt 500 V/μS • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm • Approvals: ENEC, UL, cUL
	F872 Polypropylene Metallized Film	X1	0.001 – 5.6 μF	480	• Test voltage (factory test) 3,000 VDC • Climactic category 40/110/56 • Max. dV/dt 750 V/μS • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm • Approvals: ENEC, UL, cUL
	F873 Polypropylene Metallized Film	X1	0.01 – 1.8 μF	760	• Test voltage (factory test) 4,250 VDC • Climactic category 40/110/56 • Max. dV/dt 300 V/μS • Lead spacing 22.5, 27.5, 37.5 mm • Approvals: ENEC, UL, cUL
	R46 Polypropylene Metallized Film	X2	0.01 – 10.0 μF	275 (310 UL) 300 (310 UL)	• Test voltage (factory test) 2,200 VDC & 1,500 VAC • Climactic category 40/110/56 • Max. dV/dt 100 to 500 V/μs • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm • Approvals ENEC, UL, cUL, CQC
	R46-125ºC Polypropylene Metallized Film	X2	0.01 – 1.0 μF	275 (310 UL)	• Test voltage (factory test) 2,200 VDC • Climactic category 40/125/56 • Max. dV/dt 500 V/μS • Lead spacing 10, 15, 22.5 mm • Approvals: ENEC
	PHE840M Polypropylene Metallized Film	X2	0.01 – 10.0 μF	275 (280 UL)	• Test voltage (factory test) 2,200 VDC • Climactic category 55/105/56/B • Max. dV/dt 100 V/μs • Lead spacing 7.5, 10, 15, 22.5, 27.5, 37.5 mm • Approvals ENEC, UL, cUL
	PHE840E Polypropylene Metallized Film	X2	0.01 – 10.0 μF	300	• Test voltage (factory test) 2,200 VDC • Climactic category 55/105/56/B • Max. dV/dt 100 V/μs • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm • Approvals ENEC, UL, cUL
	PME271M Impregnated Metallized Paper	X2	0.001 – 0.6 μF	275	• Test voltage (factory test) 2,150 VDC • Climatic category 40/110/56/B • Max. dV/dt 400 to 1,200 V/μs • Lead spacing 10.2, 15.2, 20.3, 22.5, 25.4 mm • Approvals: ENEC, UL, CSA
	PME271E Impregnated Metallized Paper	X1	0.01 – 0.22 μF	300	• Test voltage (factory test) 2,150 VDC • Climatic category 40/110/56/B • Max. dV/dt 400 to 1,200 V/μs • Lead spacing 15.2, 20.3, 22.5, 25.4 mm • Approvals: ENEC, UL
	PHE820M Polyester Metallized Film	X2	0.01 – 2.2 μF	275	• Test voltage (factory test) 2,150 VDC • Climatic category 40/100/56/B • Max. dV/dt 100 V/μs • Lead spacing 15, 22.5, 27.5, 37.5 mm • Approvals: ENEC, UL, CSA
	PHE820E Polyester Metallized Film	X2	0.01 – 2.2 μF	300	• Test voltage (factory test) 2,150 VDC • Climatic category 40/100/56/B • Max. dV/dt 100 V/μs • Lead spacing 15, 22.5, 27.5, 37.5 mm • Approvals: ENEC, UL, CSA

AC Line EMI Capacitors • Class X

	Series	Class	Capacitance Range	Rated Voltage (VAC)	Benefits
	R46+R Polypropylene Metallized Film	X2	0.22 –10 μF 0.22 – 10 μF	275 300	• Interference suppression and across-the-line applications • Climatic category 40/110/56 • Max. dV/dt 100 to 200 V/μs • Lead spacing 22.5, 27.5, 37.5 mm • Discharge resistor 470 kΩ to 10 MΩ • Approvals: ENEC, UL, CSA
	PHE841 Polypropylene Metallized Film	X1	0.01 – 2.2 μF	330	• Test voltage (factory test) 3,000 VDC • Climactic category 40/100/56/B • Max. dV/dt 100 V/μs • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm • Approvals ENEC, UL, CSA
	R49+R Polypropylene Metallized Film	X1	0.33 μF, 6.8 μF	330	• Interference suppression and across-the-line applications • Climatic category 40/110/56 • Max. dV/dt 100 to 200 V/μs • Lead spacing 27.5 mm, 37.5 mm • Discharge resistor 470 kΩ to 10 MΩ • Approvals: ENEC, UL, CSA
	PHE844 Polypropylene Metallized Film	X1	0.1 – 2.2 μF	440 (480 UL)	• Test voltage (factory test) 3,000 VDC • Climactic category 40/105/56/B • Max. dV/dt 100 V/μs • Lead spacing 22.5, 27.5, 37.5 mm • Approvals ENEC, UL, cUL
	PME278 Impregnated Metallized Paper	X1	0.001 – 0.15 μF	440 VAC	• Test voltage (factory test) 2,700 VDC • Climatic category 40/110/56/B • Max. dV/dt 600 to 2,000 V/μs • Lead spacing 10.2, 15.2, 20.3, 22.5, 25.4 mm • Approvals: ENEC
	R47 Polypropylene Metallized Film	X2 X1 X2	0.0047 – 2.2 μF	440 440 520	• Test voltage (factory test) 2,700 VDC & 1,700 VAC • Climactic category 40/110/56 (40/85/56 for 520 VAC) • Max. dV/dt 150 to 750 V/μs • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm • Approvals ENEC, UL, cUL
	R49 Polypropylene Metallized Film	X1	0.01 – 2.2 μF 0.047 – 6.8 μF	310 330	• Test voltage (factory test) 2,200 VDC & 1,500 VAC • Climactic category 40/110/56 • Max. dV/dt 100 to 600 V/μs • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm • Approvals ENEC, UL, cUL
	PME264 Impregnated Metallized Paper	X2	0.001 – 0.1 μF	660 VAC	• Test voltage (factory test) 3,000 VDC • Climatic category 40/085/56/B • Max. dV/dt 600 to 2,000 V/μs • Lead spacing 15.2, 20.3, 25.4 mm • Approvals: ENEC, UL
	PHE845 Polypropylene Metallized Film	X1	0.01 – 1.0 μF	760 (600 UL)	• Test voltage (factory test) 4,250 VDC • Climactic category 40/105/56/B • Max. dV/dt 100 V/μs • Lead spacing 22.5, 27.5, 37.5 mm • Approvals ENEC, UL, cUL

Film Capacitors
The Capacitance Company KEMET CHARGED®

AC Line EMI Capacitors • Class Y

	Series	Class	Capacitance Range	Rated Voltage	Benefits
	F881 Polypropylene Metallized Film	Y2	0.001 – 1.0 μF	300 VAC	• Test voltage (factory test) 4,000 VDC and 2,500 VAC • Climactic category 40/110/56 • Max. dV/dt 800 V/μS • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm • Approvals: ENEC, UL, cUL
	PHE850 Polypropylene Metallized Film	Y2	0.01 –1.0 μF	300 (480 UL)	• Test voltage (factory test) 5,000 VDC & 2,500 VAC • Climactic category 55/110/56/B • Max. dV/dt 100 V/μs • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm • Approvals ENEC, UL, cUL
	R41 Polypropylene Metallized Film	Y2	0.001 – 1.0 μF	300	• Test voltage (factory test) 5,000 VDC & 2,500 VAC • Climactic category 40/110/56 • Max. dV/dt 300 to 800 V/μs • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm • Approvals ENEC, UL, cUL, CQC
	SMP253 Impregnated Metallized Paper	Y2	0.001 – 0.0047 μF	250 VAC	• SMD, size 5,045 • Test voltage (factory test) 3,000 VDC • Climatic category 40/100/56/B • Max. dV/dt 2,000 V/μs • Approvals: ENEC, UL, CSA
	PME271Y Impregnated Metallized Paper	Y2	0.001 – 0.1 μF	250 VAC	• Test voltage (factory test) 3,000 VDC • Climatic category 40/100/56/B • Max. dV/dt 400 to 2,000 V/μs • Lead spacing 10.2, 15.2, 20.3, 25.4 mm • Approvals: ENEC, UL, CSA
	PME271Y (A-E) Impregnated Metallized Paper	Y2	0.001 – 0.15 μF	300 VAC	• Test voltage (factory test) 3,000 VDC • Climatic category 40/115/56/B • Max. dV/dt 400 to 2,000 V/μs • Lead spacing 10.2, 15.2, 20.3, 25.4 mm • Approvals: ENEC, UL, CSA
	PME295 Impregnated Metallized Paper	Y1	0.47 – 4.7 nF	440 VAC (ENEC) 480 VAC (UL)	• Test voltage (factory test) 4,000 VAC • Climatic category 40/115/56/B • Max. dV/dt 2,000 V/μs • Lead spacing 15.0 mm • Approvals: ENEC, UL, CSA

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DC Film Capacitors for AC Series Power Supply






Series	Dielectric/ Electrodes/Class	Capacitance Range	Rated Voltage	Benefits
PME271M	Impregnated metallized paper Class X2	0.001 – 0.6 μF	275 VAC	• Best long-term stability • Climatic category 40/110/56/B • Max. dV/dt 400 to 1,200 V/μs • Lead spacing 10.2, 15.2, 20.3, 22.5, 25.4 mm • Approvals: ENEC, EN/IEC 60384-14, UL 1283, UL 1414, CSA No. 1
PME271E	Impregnated metallized paper Class X1	0.01 – 0.22 μF	300 VAC	• Best long-term stability • Climatic category 40/110/56/B • Max. dV/dt 400 to 1,200 V/μs • Lead spacing 15.2, 20.3, 22.5, 25.4 mm • Approvals: ENEC, EN/IEC 60384-14, UL 1283
PHE820M	Polyester metallized film Class X2	0.01 – 2.2 μF	275 VAC	• 2-section series construction • Climatic category 40/100/56/B • Max. dV/dt 100 V/μs • Lead spacing 15, 22.5, 27.5, 37.5 mm • Approvals: ENEC, EN/IEC 60384-14, UL 1283, UL 1414, CSA No. 8, CSA No. 1
PHE820E	Polyester metallized film Class X2	0.01 – 2.2 μF	300 VAC	• 2-section series construction • Climatic category 40/100/56/B • Max. dV/dt 100 V/μs • Lead spacing 15, 22.5, 27.5, 37.5 mm • Approvals: ENEC, EN/IEC 60384-14, UL 1283, UL 1414, CSA No. 8, CSA No. 1
R752	Polypropylene metallized film	0.033 – 6.8 μF	230 VAC 400 VDC	• 1-section with humidity protection • Climatic category 55/105/56 • Max. dV/dt 70 to 1,000 V/μs • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm
R75L	Polypropylene metallized film	0.010 – 10 μF	250 VAC 560 VDC	• 1-section with humidity protection • Climatic category 55/105/56 • Max. dV/dt 90 to 1,500 V/μs • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm
R603	Polyester metallized film	0.15 – 6.8 μF	300 VAC 560 VDC	• 2-section series construction • Climatic category 55/105/56 • Max. dV/dt 100 to 200 V/μs • Lead spacing 22.5, 27.5, 37.5 mm
R47	Polypropylene metallized film Class X2	4,700 pF – 2.2 μF	520 VAC 1,000 VDC	• 2-section series construction • Climatic category 40/085/56 • Max. dV/dt 150 to 750 V/μs • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm • Approvals: ENEC IEC 60384-14, cULus (UL 1283, UL 1414)

RC Combination Arc Suppressors





Series	Dielectric/ Electrodes	Capacitance Range	Rated Voltage	Benefits
PMR205	Impregnated metallized paper	0.1 – 1.0 μF R: 22 – 680 Ω	125 VAC 250 VDC	• Test voltage (factory test) 375 VDC • Climatic category 40/085/56/B • Lead spacing 15.2, 20.3, 25.4 mm
PMR209	Impregnated metallized paper	0.047 – 0.47 μF R: 22 – 470 Ω	250 VAC 630 VDC Class X2	• Test voltage (factory test) 1,800 VDC • Climatic category 40/085/56/B • Lead spacing 15.2, 20.3, 25.4 mm • Approvals: ENEC, EN/IEC 60384-14, UL 1283
PMR210	Impregnated metallized paper	0.022 – 0.1 μF R: 100 Ω	250 VAC Class X1	• Test voltage (factory test) 3,000 VDC, 2,000 VAC • Climatic category 40/085/56/B • Lead spacing 15.2, 20.3, 25.4 mm • Approvals: ENEC, EN/IEC 60384-14, UL 1414
PMZ2035	Impregnated metallized paper	0.1 μF R: 150 Ω	440 VAC Class X1	• Test voltage (factory test) 1,800 VDC • Climatic category 40/085/56/B • Lead spacing 25.4 mm • Approvals: ENEC, EN/IEC 60384-14
1.43/F43	Polypropylene metallized film	0.25 – 1.0 μF 0.25 – 1.0 μF 0.022 – 0.5 μF 0.010 – 1.0 μF	250 VDC, 160 VAC 400 VDC, 200 VAC 630 VDC, 220 VAC 275 VAC, 560 VDC Class X2	• RC spark suppression • Climatic category 55/105/56 • Climatic category 40/100/56 (275 VAC) • Lead spacing 15, 22.5, 27.5 mm • Resistor value: 10 Ω to 1 kΩ • Approvals: ENEC IEC 60384-14, UL 1414 (only for 275 VAC)

Film Capacitors
The Capacitance Company KEMET CHARGED®

Low Voltage Noise Suppression Capacitors with Integrated Varistor or Suppression Diodes



Series	Dielectric/Electrodes	Capacitance Range	Rated Voltage (VDC)	Benefits
F5A	Polyester metallized film capacitor with integrated ceramic varistor	0.1 – 2.2 μF 0.1 – 1.5 μF	5 – 63 (p=5 mm) 5 – 63 (p=10 mm)	• DC motors suppression mainly in automotive applications • Climatic category 55/125/56 • Varistor voltage range 8 VDC to 82 VDC • Lead spacing 5, 10 mm
F5B	Polyester metallized film capacitor with integrated bidirectional suppressor diode	0.1 – 1.2 μF 1.5 – 2.2 μF 0.1 – 1.5 μF	5 – 63 (p=5 mm) 5 – 50 (p=5 mm) 5 – 63 (p=10 mm)	• DC motors suppression mainly in automotive applications for very high performance peak reduction • Climatic category 55/125/56 • Diode breakdown voltage range 10 VDC to 78 VDC • Lead spacing 5, 10 mm
F5D	Polyester metallized film capacitor with integrated ceramic capacitor	0.1 – 2.2 μF	63, 100 VDC	• DC motors suppression mainly in automotive applications • Superior frequency response • Climactic category 55/125/56 • Lead spacing 5, 10 mm

General Purpose Film Capacitors • Radial and Axial




Series	Dielectric/ Electrodes	Capacitance Range	Rated Voltage	Benefits
F611 & F612	Polyester metallized film	0.001 – 330 μF	50 – 1,000 VDC	• Operating temperature range of -55˚C to +105˚C • Lead spacing: 5 – 37.5 mm • Capacitance tolerance: ±5%, ±10%, ±20% • RoHS compliant and lead-free terminations
F622	Polyester metallized film	0.001 – 2.2 μF	50 – 630 VDC	• Operating temperature range of -55˚C to +125˚C • Designed for high performance, high temperature applications • Lead spacing: 5 mm • Capacitance tolerance: ±5%, ±10%, ±20% • RoHS compliant and lead-free terminations
MMK	Polyester metallized film, radial	0.001 – 82 μF	50 – 1,000 VDC	• Climactic category 55/100/56 • Max. dV/dt 1.0 to 100 V/μs • Lead spacing 5, 7.5, 10, 15, 22.5, 27.5, 37.5 mm
R82 (5 mm) R66 (7.5 mm) R60 (10 – 37.5 mm)	Polyester metallized film, radial	0.001 – 220 μF	50 – 1,000 VDC	• Climactic category 55/105/56 • Max. dV/dt 1.0 to 400 V/μs • Lead spacing 5, 7.5, 10, 15, 22.5, 27.5, 37.5 mm
RSB	Polyester metallized film, radial high temp.	0.001 – 2.2 μF	50 – 630 VDC	• Climactic category 55/125/56 • Max. dV/dt 200 to 800 V/μs • Lead spacing 5 mm
PME261	Impregnated metallized paper, radial	0.0082 – 1.0 μF 0.001 – 0.15 μF 0.001 – 0.1 μF	220 VAC, 400 VDC 300 VAC, 630 VDC 500 VAC, 1,000 VDC	• Test voltage (factory test) 800 VDC/1,250 VDC 2,000 VDC • Climatic category 40/070/56 • Max. dV/dt 220 to 2,000 V/μs • Lead spacing 10.2, 15.2, 20.3, 25.4 mm
A50	Polyester metallized film, axial	0.47 – 10.0 μF 0.33 – 10.0 μF 0.10 –10.0 μF 0.047 –10.0 μF 0.010 – 3.3 μF 1,000 pF – 1.0 μF 1,000 pF – 0.47 μF	50 VDC, 30 VAC 63 VDC, 40 VAC 100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC 630 VDC, 220 VAC 1,000 VDC, 250 VAC	• DC multipurpose applications • Climatic category 55/105/56 • Max dV/dt 1.0 to 50 V/μs • Length L = 11 to 33 mm

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Stable High Temperature Capacitors • PPS Film

Series	Electrodes	Capacitance Range	Rated Voltage	Benefits
SMR	Metallized	0.001 – 22 µF 0.001 – 22 µF 0.001 – 12 µF 0.001 – 3.9 µF 0.001 – 1.8 µF	50 VDC, 30 VAC 63 VDC, 40 VAC 100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC	• Climatic category 55/150/56 • Max. dV/dt 2 to 40 V/µs • Lead spacing 5, 7.5, 10, 15, 22.5, 27.5 mm

Metallized Polyester • High Current for High Frequency SMPS & DC/DC Converters

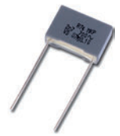
Series	Type	Capacitance Range	Rated Voltage	Benefits
MDK	Through-hole, multiple leads	0.033 – 15 µF 0.033 – 10 µF 0.033 – 1.5 µF 0.033 – 0.47 µF 0.033 – 0.18 µF	50 VDC, 30 VAC 100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC 630 VDC, 220 VAC	• For high frequency output filtering • Metallized Polyester (PET) • Climatic category 55/125/56 • Lead spacing 10, 15 mm
MDC	SMD, multiple leads	0.033 – 15 µF 0.033 – 10 µF 0.033 – 1.5 µF 0.033 – 0.47 µF 0.033 – 0.18 µF	50 VDC, 30 VAC 100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC 630 VDC, 220 VAC	• For high frequency output filtering • Metallized Polyester (PET) • Climatic category 55/125/56 • Lead spacing 10, 15 mm
MDS	SMD, low profile, multiple leads	0.033 – 5.6 µF 0.033 – 0.68 µF 0.033 – 0.33 µF 0.033 – 0.10 µF	50 VDC, 30 VAC 100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC 630 VDC, 220 VAC	• For high frequency output filtering • Metallized Polyester (PET) • Climatic category 55/125/56 • Lead spacing 10, 15 mm
JSN	SMD, multiple leads, through-hole also available	10 – 68 µF 10 –33 µF 10 –15 µF	100 VDC, 63 VAC 160 VDC, 90 VAC 250 VDC, 160 VAC	• DC/DC and AC/DC converters applications • Climatic category (IEC 60068-1) 55/125/56 • Max. dV/dt 27 to 40 V/µs • Size from 60.80 to 60.160 (naked components)

Polypropylene Film Capacitors • Radial & Axial

Series	Construction	Capacitance Range	Rated Voltage	Benefits
F461-F464	Single metallized film	0.001 – 56 µF	160 – 2,500 VDC 90 – 900 VAC	• DC or AC applications • Operating temperature range of -55°C to +105°C • Lead spacing: 5 – 37.5 mm • Capacitance tolerance: ±5%, ±10%, other tolerances on request • RoHS compliant and lead-free terminations
PHE426	Single metallized film, radial	0.001 – 0.22 µF 0.001 – 27 µF 0.033 – 18 µF 0.001 – 10 µF 0.1 – 3.9 µF 0.001 – 5.6 µF 0.0027 – 3.3 µF 0.0047 – 0.047 µF 0.001 – 0.027 µF	100 VDC, 63 VAC 250 VDC, 160 VAC 300 VDC, 160 VAC 400 VDC, 220 VAC 450 VDC, 220 VAC 630 VDC, 250 VAC 1,000 VDC, 250 VAC 1,600 VDC, 650 VAC 2,000 VDC, 700 VAC	• DC or AC applications • Climactic category 55/105/56 • Max. dV/dt 30 to 1,500 V/µs • Lead spacing 5, 7.5, 10, 15, 22.5, 27.5, 37.5 mm
R79	Single metallized film, radial	0.039 – 0.22 µF 0.012 – 0.15 µF 0.0039 – 0.047 µF 0.001 – 0.018 µF	160 VDC, 70 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC 630 VDC, 220 VAC	• DC or AC applications • Climactic category 55/105/56 • Max. dV/dt 100 to 600 V/µs • Lead spacing 5 mm
R75	Single metallized film, radial	0.1 – 3.3 µF 0.068 – 33 µF 0.068 – 0.22 µF 0.027 – 33 µF 0.027 – 0.068 µF 0.01 – 15 µF 0.01 – 0.027 µF 0.001 – 8.2 µF 0.012 – 3.9 µF 220 pF – 0.0082 µF 0.0082 – 2.2 µF 0.0039 – 1.5 µF 0.001 – 1.0 µF	160 VDC, 70 VAC 160 VDC, 90 VAC 250 VDC, 140 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC 400 VDC, 220 VAC 630 VDC, 220 VAC 630 VDC, 250 VAC 1,000 VDC, 250V AC 1,000 VDC, 400 VAC 1,250 VDC, 600 VAC 1,600 VDC, 650 VAC 2,000 VDC, 700 VAC	• Climactic category 55/105/56 • Max. dV/dt 35 to 9,500 V/µs • Lead spacing 7.5, 10, 15, 22.5, 27.5, 37.5 mm

Film Capacitors

Polypropylene Film Capacitors • Radial & Axial (cont.)



Series	Construction	Capacitance Range	Rated Voltage	Benefits
R74	Single metallized film, radial	0.010 – 0.15 µF 2,200 pF – 3.3 µF 1,000 pF – 2.2 µF 470 pF – 0.018 µF 470 pF – 1.0 µF 1,000 pF – 0.47 µF	250 VAC, 630 VDC 400 VAC, 1,300 VDC 500 VAC, 1,600 VDC 600 VAC, 2,000 VDC (Mini) 700 VAC, 2,000 VDC 900 VAC, 2,200 VDC	• Optimized for AC applications • Climatic category 55/105/56 • Max. dV/dt 180 to 10,000 V/µs • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm
R74 125°C	Single metallized film, radial	1,000 pF – 0.10 µF 680 pF – 0.068 µF	500 VAC, 1,600 VDC 700 VAC, 2,000 VDC	• Optimized for AC applications • Climatic category 55/125/56 • Max. dV/dt 1,200 to 9,500 V/µs • Lead spacing 10, 15, 22.5 mm
R71	Single metallized film, radial	0.010 – 22 µF 0.010 – 22 µF 0.010 – 15 µF 0.22 – 10 µF	420 VDC, 220 VAC 520 VDC, 250 VAC 630 VDC, 275 VAC 1,000 VDC, 275 VAC	• PFC (Power Factor Correction) applications • Climatic category 40/110/56 • Max. dV/dt 60 to 400 V/µs • Lead spacing 10, 15, 22.5, 27.5, 37.5 mm • DC or AC applications
PHE429	Single metallized film, radial	0.1 – 0.47 µF 0.047 – 0.15 µF	420 VDC, 220 VAC 630 VDC, 275 VAC	• DC or AC applications • Climatic category 55/110/56 • Max. dV/dt 150 to 250 V/µs • Lead spacing 15 mm
A70	Single metallized film, axial	0.022 – 4.7 µF 0.010 – 3.3 µF 6,800 pF – 1.5 µF 1,000 pF – 0.68 µF	160 VDC, 90 VAC 250 VDC, 200 VAC 400 VDC, 220 VAC 630 VDC, 250 VAC	• DC or AC applications • Climatic category 55/105/56 • Max. dV/dt 1 to 30 V/µs • Length L = 11 to 33 mm
R76	Double metallized film, radial	6,800 pF – 15.0 µF 2,700 pF – 8.2 µF 680 pF – 0.012 µF 3,900 pF – 5.6 µF 220 – 3300 pF 470 pF – 2.2 µF 3,300 pF – 1.2 µF 100 pF – 0.68 µF	250 VDC, 180 VAC 400 VDC, 250 VAC 630 VDC, 250 VAC 630 VDC, 400 VAC 1,000 VDC, 400 VAC 1,000 VDC, 600 VAC 1,600 VDC, 650 VAC 2,000 VDC, 700 VAC	• Optimized for DC and pulse applications • Climatic category 55/105/56 • Max. dV/dt 100 to 9,500 V/µs • Lead spacing 7.5, 10, 15, 22.5, 27.5, 37.5 mm
R77	Double metallized film, radial	0.027 – 0.10 µF 0.010 – 0.10 µF 5,600 pF – 0.10 µF 1,000 pF – 0.10 µF 1,000 pF – 0.027 µF 1,000 pF – 0.018 µF	250 VAC, 630 VDC 300 VAC, 800 VDC 400 VAC, 1,000 VDC 500 VAC, 1,300 VDC 700 VAC, 1,600 VDC 900 VAC, 2,000 VDC	• Optimized for AC applications • Climatic category 55/105/56 • Max. dV/dt 900 V/µs to 9,500 V/µs • Lead spacing 15, 22.5, 27.5 mm
PHE450	Double metallized film, radial	330 pF – 10 µF 330 pF – 5.6 µF 330 pF – 3.3 µF 330 pF – 2.2 µF 2.7 nF – 1.0 µF 1.0 nF – 0.68 µF 1 nF – 0.33 µF 1 nF – 0.033 µF	250 VDC, 180 VAC 400 VDC, 250 VAC 630 VDC, 300/400 VAC 1,000 VDC, 375/600 VAC 1,600 VDC, 650 VAC 2,000 VDC, 700 VAC 2,500 VDC, 900 VAC 3,000 VDC, 1,000 VAC	• DC or AC applications • Climatic category 55/105/56/B • Max. dV/dt 200 to 2,500 V/µs • Lead spacing 7.5, 10, 15, 22.5, 27.5, 37.5 mm
R73	Polypropylene film/foil, radial	0.047 – 0.15 µF 0.033 – 0.10 µF 0.015 – 0.047 µF 0.010 – 0.047 µF 0.010 – 2.2 µF 3,300 pF – 1.5 µF 2,200 pF – 0.82 µF 1,000 pF – 0.56 µF 100 pF – 0.22 µF	100 VDC, 63 VAC 160 VDC, 90 VAC 250 VDC, 125 VAC 400 VDC, 160 VAC 630 VDC, 300 VAC 1,000 VDC, 400 VAC 1,250 VDC, 450 VAC 1,600 VDC, 450 VAC 2,000 VDC, 500 VAC	• High current applications • Climatic category 55/105/56 • Max. dV/dt 2,400 to 54,000 V/µs • Lead spacing 15, 22.5, 27.5, 37.5 mm
PHE448	Film/foil, radial	1.5 – 22 nF 0.1 – 3.3 nF	1,600 VDC, 650 VAC 2,000 VDC, 700 VAC	• High current applications • Climatic category 55/105/56 • Max. dV/dt 15,000 to 25,000 V/µs • Lead spacing 15 mm

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Polypropylene Film Capacitors • Radial & Axial (cont.)

Series	Construction	Capacitance Range	Rated Voltage	Benefits
PFR	Film/foil, radial	100 – 22,000 pF 100 – 10,000 pF 100 – 6,800 pF 100 – 6,800 pF 100 – 4,700 pF 100 – 680 pF	63 VDC, 40 VAC 100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 220 VAC 630 VDC, 250 VAC 1,000 VDC, 250 VAC	• Timing, integration • Climatic category 55/100/56 • Max. dV/dt 1,000 V/μs • Lead spacing 5 mm
A72	Film/foil, axial	4,700 pF – 0.010 μF 2,200 pF – 0.015 μF 47 pF – 0.010 μF 0.015 – 0.33 μF 3,300 pF – 0.10 μF 2,200 pF – 0.068 μF 1,000 pF – 0.047 μF	100 VDC, 63 VAC 250 VDC, 125 VAC 400 VDC, 160 VAC 630 VDC, 300 VAC 1,000 VDC, 400 VAC 1,500 VDC, 450 VAC 2,000 VDC, 500 VAC	• High current applications • Climatic category 55/105/56 • Max. dV/dt 1,800 to 27,000 V/μs • Length L = 11 to 33 mm

SMD Film Capacitors

Metallized Polyester Dielectric

Series	Type	Capacitance Range	Rated Voltage	Benefits
MMC	2,220 – 6,560 2,824 – 6,560 2,220 – 6,560 2,220 – 6,560 2,824 – 6,560	1 – 15,000 nF 1 – 4,700 nF 1 – 3,300 nF 1 – 1,000 nF 1 – 470 nF	50 VDC, 30 VAC 63 VDC, 40 VAC 100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC	• Encapsulated winding construction • Climatic category 55/100/56 • Max. dV/dt 5 to 50 V/μs
MDC	SMD, multiple leads	0.033 – 15 μF 0.033 – 10 μF 0.033 – 1.5 μF 0.033 – 0.47 μF 0.033 – 0.18 μF	50 VDC, 30 VAC 100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC 630 VDC, 220 VAC	• For high frequency output filtering • Metallized Polyester (PET) • Climatic category 55/125/56 • Lead spacing 10, 15 mm
MDS	SMD, low profile, multiple leads	0.033 – 6.8 μF 0.033 – 5.6 μF 0.033 – 0.68 μF 0.033 – 0.33 μF 0.033 – 0.10 μF	50 VDC, 30 VAC 100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC 630 VDC, 220 VAC	• For high frequency output filtering • Metallized Polyester (PET) • Climatic category 55/125/56 • Lead spacing 10, 15 mm
JSN	SMD, multiple leads, through-hole also available	10 – 68 μF 10 – 33 μF 10 – 15 μF	100 VDC, 63 VAC 160 VDC, 90 VAC 250 VDC, 160 VAC	• DC/DC and AC/DC converters applications • Climatic category 55/125/56 • Max. dV/dt 27 to 40 V/μs • Size from 60.80 to 60.160 (naked components)

SMD Film Capacitors (cont.)

Metallized PEN Dielectric

Series	Type	Capacitance Range	Rated Voltage	Benefits
GMC	2,220 – 6,560 2,824 – 6,560 2,220 – 6,560 2,220 – 6,560 2,824 – 5,045 4,036 – 6,560	1 – 5,600 nF 1 – 4,700 nF 1 – 2,200 nF 1 – 680 nF 1 – 330 nF 22 – 150 nF	50 VDC, 30 VAC 63 VDC, 40 VAC 100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC 630 VDC, 300 VAC	• Encapsulated winding construction • Metallized Polyethylene Naphthalate (PEN) • Climatic category 55/125/56 • Max. dV/dt 5 to 50 V/μs
GPC	2,824 – 6,560	0.47 –1,000 nF 0.47 – 1,000 nF 0.47 – 680 nF 0.47 – 470 nF 0.47 – 220 nF 0.47 – 150 nF 0.47 – 68 nF	63 VDC, 40 VAC 100 VDC, 63 VAC 160 VDC, 100 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC 630 VDC, 300 VAC 1,000 VDC, 350 VAC	• Encapsulated winding construction • Double sided metallized film as electrode • Climatic category 55/125/56 • Max. dV/dt 100 to 2,200 V/μs
LDE*	1,206 – 6,054 1,206 – 6,054 1,206 – 6,054 1,206 – 6,054 2,220 – 6,054 2,220 – 6,054 2,220 – 6,054	1,000 pF – 4.7 μF 1,000 pF – 4.7 μF 1,000 pF – 4.7 μF 1,000 pF – 1.5 μF 0.015 – 0.47 μF 1,000 pF – 0.27 μF 1,000 pF – 0.1 μF	50 VDC, 40 VAC 63 VDC, 40 VAC 100 VDC, 63 VAC 250 VDC, 120 VAC 400 VDC, 160 VAC** 630 VDC, 200 VAC 1,000 VDC, 250 VAC	• Unencapsulated winding construction • Climatic category 55/125/56 • Max. dV/dt 100 to 300 V/μs
GMW	2,220	1 – 470 nF 1 – 220 nF 1 – 68 nF 1 – 15 nF 1 – 6.8 nF	63 VDC, 40 VAC 100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC 630 VDC, 220 VAC	• Unencapsulated winding construction • Climatic category 55/125/21 • Max. dV/dt 20 to 50 V/μs

* For rated voltage ≥ 250 VDC, ITU & Telcordia compliant version available.
** 400 VDC/230 VAC for 30 minutes (occasionally).

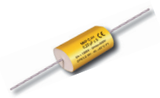
Metallized PPS Dielectric

Series	Type	Capacitance Range	Rated Voltage	Benefits
SMC	2,220 – 6,560	1 – 3,300 nF 1 – 1,500 nF 1 – 470 nF 1 – 220 nF	50 VDC, 30 VAC 100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC	• Encapsulated winding construction • Climatic category 55/125/56 • Max. dV/dt 2 to 40 V/μs
SPC	2,824 – 6,560	0.47 – 680 nF 0.47 – 330 nF 0.47 – 150 nF 0.47 – 100 nF	100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 250 VAC 630 VDC, 350 VAC	• Encapsulated winding construction • Double sided metallized film as electrode • Climatic category 55/125/56 • Max. dV/dt 150 to 2,000 V/μs
LDB	1,206 – 1,210 1,206 – 1,812	0.012 – 0.1 μF 3,300 pF – 0.1 μF	16 VDC 50 VDC	• Unencapsulated chip construction • Special tolerances 2% to 5% • Climatic category 55/125/56
SMW	2,220 – 2,824	1 – 560 nF 1 – 180 nF 1 – 68 nF 1 – 22 nF	50 VDC, 30 VAC 100 VDC, 63 VAC 250 VDC, 160 VAC 400 VDC, 200 VAC	• Unencapsulated winding construction • Climatic category 55/125/56 • Max. dV/dt 8 to 20 V/μs

Metallized Impregnated Paper Dielectric • Class Y

Series	Type	Capacitance Range	Rated Voltage	Benefits
SMP253	5,045	1 – 4.7 nF	250 VAC	• Encapsulated winding construction • EMI Capacitor, Class Y2 • Climatic category 40/100/56/B • Max. dV/dt 2,000 V/μs

Power Electronics & AC Film Capacitors • Metallized Polypropylene



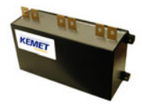




Series	Type	Capacitance Range	Rated Voltage	Benefits
C4C	Axial	0.1 – 2.5 μF 0.047 – 1.5 μF 0.022 – 0.68 μF 6,800 pF – 0.22 μF	850 VDC, 450 VAC 1,200 VDC, 500 VAC 2,000 VDC, 630 VAC 3,000 VDC, 750 VAC	• Snubber applications • Climatic category 40/85/56 • Max. dV/dt 200 to 2,100 V/μs • Length L = 33 to 58 mm
C4G	Axial	1 – 40 μF 0.47 – 20 μF 0.47 – 10 μF 0.47 – 6.8 μF 0.15 – 4.0 μF	250 VDC, 160 VAC 400 VDC, 250 VAC 600 VDC, 330 VAC 700 VDC, 400 VAC 850 VDC, 450 VAC	• Switching applications • Climatic category 40/85/56 • Max. dV/dt 15 to 210 V/μs • Length L = 20.5 to 58 mm
C4H	Axial flat	0.1 – 1.0 μF 0.047 – 0.68 μF 0.022 – 0.33 μF 6,800 pF – 0.1 μF	850 VDC, 450 VAC 1,200 VDC, 500 VAC 2,000 VDC, 630 VAC 3,000 VDC, 750 VAC	• Snubber applications • Climatic category 40/85/56 • Max. dV/dt 190 to 2,100 V/μs • Length L = 33 to 58 mm
C4M	Axial flat	1 – 20 μF 0.47 – 6.8 μF 0.47 – 4.7 μF 0.47 – 3.0 μF	250 VDC, 160 VAC 400 VDC, 250 VAC 600 VDC, 330 VAC 700 VDC, 400 VAC	• Switching applications • Climatic category 40/85/56 • Max. dV/dt 15 to 80 V/μs • Length L = 20.5 to 58 mm
C4AS	Box	0.15 – 5.0 μF 0.15 – 4.7 μF 0.1 – 3.5 μF 0.033 – 1.5 μF 0.022 – 0.82 μF	850 VDC, 500 VAC 1,000 VDC, 600 VAC 1,200 VDC, 630 VAC 2,000 VDC, 700 VAC 3,000 VDC, 750 VAC	• Snubber applications • Climatic category 40/85/56 • Max. dV/dt 469 to 3,360 V/μs • Lead spacing 27.5, 37.5, 52.5 mm • Terminals: Tinned copper 2 or 4 wires
C4AT	Box	1.0 – 60 μF 1.0 – 40 μF 1.0 – 33 μF 0.68 – 20 μF 0.47 – 15 μF 0.22 – 10 μF	250 VDC, 160 VAC 400 VDC, 250 VAC 450 VDC, 275 VAC 600 VDC, 350 VAC 700 VDC, 400 VAC 850 VDC, 450 VAC	• Switching applications • Climatic category 40/85/56 • Max. dV/dt 15 to 148 V/μs • Lead spacing 27.5, 37.5, 52.5 mm • Terminals: Tinned copper 2 or 4 wires
C4AE	Radial Box 2 or 4 Leads	4.5 – 100 μF 3.3 – 75 μF 2.7 – 60 μF 1.5 – 40 μF 1 – 27 μF	450 VDC 600 VDC 700 VDC 900 VDC 1,100 VDC	• DC link applications • Self-healing • Low losses • High ripple current • High capacitance density • High contact reliability • Suitable for high frequency applications • 105°C maximum operating temperature • Lead spacing 27.5 – 52.5 mm • Terminals: tinned copper 2 or 4 wires • RoHS compliant and lead-free terminations
C4BS	IGBT box	0.47 – 5.0 μF 0.47 – 4.0 μF 0.33 – 3.3 μF 0.10 – 1.5 μF 0.047 – 0.82 μF	850 VDC, 550 VAC 1,000 VDC, 600 VAC 1,200 VDC, 630 VAC 2,000 VDC, 700 VAC 3,000 VDC, 750 VAC	• Snubber-IGBT applications • Climatic category 40/85/56 • Max. dV/dt 469 to 3,361 V/μs • Box length L = 32 to 57.5 mm • Terminals: Tinned brass lugs
C4BT	IGBT box	4.7 – 60 μF 3.3 – 40 μF 2.5 – 20 μF 1.5 – 15 μF 1.0 – 10 μF	250 VDC, 160 VAC 400 VDC, 250 VAC 600 VDC, 330 VAC 700 VDC, 400 VAC 850 VDC, 450 VAC	• Switching-IGBT applications • Climatic category 40/85/56 • Max. dV/dt 27 to 148 V/μs • Box length L = 32 to 57.5 mm • Terminals: Tinned brass lugs
C4DC	Flat cylindrical plastic case (low inductance)	1.5 – 6.0 μF 1.0 – 4.0 μF 0.5 – 4.0 μF	850 VDC, 500 VAC 1,000 VDC, 600 VAC 1,400 VDC, 700 VAC	• Snubber-GTO applications • Climatic category 40/85/56 • Max. dV/dt 380 to 1,000 V/μs • Diameter D = 60 to 90 mm • Height H = 51 to 64 mm • Hole M8 threaded (M6 on request)
C4DR	Flat cylindrical plastic case (low inductance)	25 – 220 μF 12 – 100 μF 7.5 – 70 μF 4.0 – 60 μF 2.5 – 25 μF 1.0 – 15 μF	400 VDC, 160 VAC 600 VDC, 220 VAC 700 VDC, 250 VAC 850 VDC, 330 VAC 1,200 VDC, 440 VAC 1,500 VDC, 500 VAC	• Clamper-GTO applications • Climatic category 40/85/56 • Max. dV/dt 12 to 400 V/μs • Diameter D = 60 to 90 mm • Height H = 51 to 99 mm • Hole M8 threaded (M6 on request)
C4DE	Flat cylindrical plastic case (low inductance)	175 – 380 μF 100 – 220 μF 68 – 140 μF 47 – 100 μF	400 VDC 600 VDC 800 VDC 1,000 VDC	• DC link applications • Climatic category 40/85/21 • Max. dV/dt 15 to 37 V/μs • Diameter D = 84 mm • Height H = 40, 51, 64 mm • Terminals: M6 or M8 threaded bolt (also available with threaded female connections)

Film Capacitors

Power Electronics & AC Film Capacitors • Metallized Polypropylene (cont.)








Series	Type	Capacitance Range	Rated Voltage	Benefits
C4E	Rectangular box, metal or plastic	According to customer request	According to customer request	• Custom and standard “brick“ DC link capacitors for energy conversion, AC motor drives and hybrid/electric vehicles
C44A	Aluminum case	15 – 330 μF 10 – 100 μF 5 – 100 μF 3 – 60 μF 1.0 – 22 μF 1.0 – 15 μF	400 VDC, 250 VAC 600 VDC, 330 VAC 700 VDC, 400 VAC 850 VDC, 450 VAC 1,200 VDC, 500 VAC 1,500 VDC, 630 VAC	• General purpose applications • Climatic category 40/85/21 • Max. dV/dt 10 to 400 V/μs • Diameter D = 45 to 85 mm, Height H = 80 to 200 mm • Terminals: Tinned brass spade lugs or screws
C44B	Aluminum case	0.10 – 1.5 μF 0.047 — 0.68 μF 0.10 – 4.0 μF	1,200 VDC, 500 VAC 2,000 VDC, 630 VAC 2,400 VDC, 1,000 VAC	• Snubber applications • Climatic category 40/85/21 • Max. dV/dt 500 to 750 V/μs • Diameter D = 25 to 65 mm, Height H = 60 to 200 mm • Terminals: Tinned brass spade lugs or screws
C44E	Aluminum case	150 – 400 μF 100 – 200 μF 100 – 120 μF 50 – 60 μF	400 VDC, 250 VAC 600 VDC, 380 VAC 750 VDC, 440 VAC 1,200 VDC, 550 VAC	• AC filter applications • Climatic category 25/70/21 • Max. dV/dt 10 to 30 V/μs • Diameter D = 76 to 85 mm, Height H = 137 to 270 mm • Terminals: Tinned brass spade lugs or screws
C44H	Aluminum case	15 – 120 μF 15 – 56 μF 30 – 55 μF	400 VDC, 250 VAC 600 VDC, 330 VAC 700 VDC, 400 VAC	• UPS filtering applications • Climatic category 40/85/21 • Max. dV/dt 15 to 30 V/μs • Diameter D = 45 to 75 mm, Height H = 61 to 150 mm • Terminals: Tinned double spade lug 6.3 mm
C44P-C20A	Aluminum case	200 – 600 μF 100 – 600 μF 100 – 300 μF 22 – 150 μF 15 – 150 μF 10 – 100 μF	400 VDC, 250 VAC 500 VDC, 330 VAC 750 VDC, 440 VAC 750 VDC, 550 VAC 900 VDC, 640 VAC 1,100 VDC, 780 VAC	• AC filter applications • Climatic category 25/70/56 • Max. dV/dt 15 to 30 V/μs • Diameter D = 65 to 116 mm, Height H = 115 to 280 mm • Terminations: Plastic insulator with screw terminals M10 • Safety device
C44U	Aluminum case	120 – 550 μF 75 – 600 μF 50 – 500 μF 50 – 550 μF	700 VDC 900 VDC 1,100 VDC 1,300 VDC	• DC link applications • Climatic category 40/85/21 • Max. dV/dt 6 to 31 V/μs • Diameter D = 76, 8 5 mm, Height H = 55 to 140 mm • Terminals: Tinned brass screws
C93	Aluminum case	50 – 100 μF 10 – 100 μF	400 VDC, 320 VAC 600 VDC, 415 VAC	• PFC and filter applications • Max. dV/dt 30 V/μs • Diameter D = 40 to 75 mm, Height H = 78 to 150 mm • Terminals: Tinned brass spade lugs or screws • Safety device – IMQ, UL approvals
C9T	Aluminum case	3x30.8 – 3x184.8 μF 3x26.2 – 3x157 μF 3x19.2 – 3x115 μF 3x27.9 – 3x66.8 μF	415 VAC 450 VAC 525 VAC 690 VAC	• PFC & AC filter applications – Three-phase execution • Max. dV/dt 30 V/μs • Diameter D = 60 to 116 mm, Height H = 150 to 280 mm • Terminals: Tinned brass spade lugs or screws • Safety device – UL approval

Capacitors for AC Lighting Applications • Metallized Polypropylene

	Series	Type	Capacitance Range	Rated Voltage	Benefits
	C3B	Cylindrical plastic case	2 – 50 μF	250 VAC	• Lighting applications • Temperature range -25/+85°C • Diameter D = 25 to 50 mm, Height H = 48 to 133 mm • Terminals: Unipolar wires, push in connector • Mechanical connection: With/without bolt, quick fitting • Type of capacitor (ENEC03): Type A
	C95	Cylindrical Aluminum case	2.0 – 60 μF 2.5 – 6.8 μF	250 VAC 450 VAC	• Lighting applications • Temperature range -25/+85°C and -25/+100°C • Diameter D = 25 to 50 mm, Height H = 55 to 120 mm • Terminals: Spade lug 2.8 mm, push in connector • Mechanical connection: With/without bolt, quick fitting • Type of capacitor (ENEC03): Type B

Capacitors for AC Motor Run Applications • Metallized Polypropylene

	Series	Type	Capacitance Range	Rated Voltage	Benefits
	C27	Cylindrical plastic case	1 – 70 μF 1 – 100 μF 1 – 120 μF	420 VAC cl.A 470 VAC cl.B 420 VAC cl.B 470 VAC cl.C 275 VAC cl.B 425 VAC cl.D	• Climatic category -25/85/21 or -25/100/21 • Class of safety protection: P0 • Diameter (D) D = 25 to 60 mm • Height (H) H = 55 to 120 mm • Terminals: Spade lug, unipolar wires, bipolar cable • Mechanical connection: With/without bolt, quick fitting
	C28	Cylindrical plastic case	2 – 11 μF	420 VAC cl.A 470 VAC cl.B	• Climatic category -25/85/21 • Class of safety protection: P2 • Diameter (D) D = 25 to 35 mm • Height (H) H = 55 to 74 mm • Terminals: Spade lug, unipolar wires, bipolar cable • Mechanical connection: With/without bolt, quick fitting
	C87	Cylindrical aluminum case	1 – 80 μF 1 – 120 μF 1 – 130 μF	420 VAC cl.A 470 VAC cl.B 420 VAC cl.B 470 VAC cl.C 280 VAC cl.B	• Climatic category -25/85/21 or -25/100/21 • Class of safety protection: P2 • Diameter (D) D = 25 to 60 mm • Height (H) H = 48 to 133 mm • Terminals: Spade lug, bipolar cable • Mechanical connection: With/without bolt
	C24	Box plastic case	0.2 – 9.0 μF 0.47 – 20.0 μF 0.4 – 15.0 μF 0.1 – 3.0 μF 0.68 – 30.0 μF 0.33 – 10.0 μF	460 VAC C24.6 275 VAC C24.K 350 VAC C24.B 650V AC C24.7 230 VAC C24.2 400 VAC C24.4 (valid 2009)	• Climatic category -40/85(100)/21 • Class of safety protection: P0 • Lead spacing 22.5, 27.5, 37.5 mm • Max. dV/dt 30 to 50 V/μs

Which capacitor is right for you?

As *The Capacitance Company*, we make over 95% of possible dielectric solutions – the broadest selection of capacitor technologies in the industry. By offering a wide variety of dielectrics, dimensions, voltages, temperature characteristics and terminations, KEMET capacitors satisfy an expansive range of customer requirements and applications.

In fact, if the capacitor you need hasn't been invented, it's only because you haven't asked. We can quickly develop custom products and carry out early-stage manufacturing through our accelerated collaboration services. Available through our global innovation and manufacturing centers around the world, accelerated collaboration brings together the necessary people, equipment and facilities together to get the job done, on time and in budget.

Of course, when you're under pressure to design smaller and smaller products with greater and greater functionality, there's no time for the traditional back-and-forth with your suppliers. With KEMET, you get direct contact to the engineers and other professionals who can help you successfully solve your design problems, and in record time. We deal personally with customers to ascertain the new part types needed for their next-generation products. In many cases, we can go from start to samples in only four months.

We've helped some of the world's most prominent electronics companies slash time to market and gain significant windows of competitive advantage. We can do the same for you, too.

Tantalum Capacitors

Tantalum capacitors are the leading choice when high capacitance is needed in the smallest possible size. KEMET has been the foremost manufacturer of tantalum capacitors for over 50 years, and is constantly introducing new innovations to meet changing demands. Offered in a variety of standard sizes, KEMET tantalum capacitors are fully RoHS compliant and compatible with modern solder processes including multiple Pb-Free reflow passes.

KEMET tantalum capacitors offer many advantages including low ESR, surge current robustness and multiple operating temperature ranges. KEMET also offers a complete line of military and Commercial Off-The-Shelf (COTS) products as well as enhanced testing for space applications. While many applications use surface mount technology, a complete line of through-hole tantalum capacitors are available for down-hole, military and other demanding environments.

KEMET's traditional MnO_2 tantalum capacitors consist of a sintered anode of tantalum metal. This anode is porous, thus providing increased surface area. An oxide layer is then formed, and this oxide layer becomes the capacitor dielectric. The oxidized anode is impregnated with manganese dioxide to form the cathode.

Tantalum polymer capacitors are a newer variation which replaces the manganese dioxide cathode with a solid conductive polymer cathode. KEMET polymer tantalum capacitors are recommended when very low ESR, increased temperature stability, or benign failure mode is critical.

Tantalum Surface Mount Products

Standard Tantalum	Low ESR		High Temperature	High Reliability Commercial Off-The-Shelf (COTS)	MIL-PRF (CWR Series)	Fused	Automotive Grade
T491 Commercial	MnO_2	Polymer	T498 150°C Rated	T428 High Volumetric Efficiency Facedown	T409 CWR09 Style MIL-PRF-55365/4	T496 Series	T491 Commercial
T489 Low Leakage Commercial	T494 Commercial (≥80 mΩ)	T520 105°C Rated Polymer (≥6 mΩ)	T499 175°C Rated	T493 Military/ Aerospace COTS/Low ESR Option CWR11 Case Sizes	T419 CWR19 Style MIL-PRF-55365/11		T494 Commercial (≥80 mΩ)
	T495 Surge Robust (≥30 mΩ)	T521 High Voltage Polymer (≥25 mΩ)		T497 High Grade COTS CWR09/19/29 Case Sizes	T429 CWR29 Style MIL-PRF-55365/8		T489 Low Leakage
	T510 High Capacitance (≥10 mΩ)	T522 Low Leakage Polymer		T513 Multiple Anode Low ESR COTS	T492 CWR11 Style MIL-PRF-55365/8		T495 Surge Robust (≥30 mΩ)
	Tantalum Stack MnO_2 (TSM)	T525 125°C Rated Polymer (≥25 mΩ)		T540 Polymer COTS			T498 150°C Rated
		T528 Low ESL Facedown Terminal Polymer (≥5 mΩ)		T541 Polymer COTS Multiple Anode			T499 175°C Rated
		T530 High Capacitance 125°C Rated Polymer (≥4 mΩ)		T543 Polymer COTS			T510 Multiple Anode Low ESR MnO_2
		T545 High Energy Polymer					T525 125°C Rated Polymer (≥25 mΩ)
		Tantalum Stack Polymer (TSP)					

DSCC Drawings

T495 - DSCC Drawing 95158E
T496 - DSCC Drawing 04053A
T525 - DSCC Drawing 04051
T530 - DSCC Drawing 04052

Tantalum Through-Hole Products

Hermetically Sealed	Radial Dipped	Molded Axial	Molded Radial
Polar T110/T140 Series CSR13 Case Sizes	T35X Series Standard Radial Dipped	T32X Series CX01/05 Style MIL-PRF-49137/1 & 5	T330/T340 Series Standard Molded Radial
Polar T2XX Series CSR/CSS Style MIL-PRF-39003	T363/T369 Series CX02/12 Style MIL-PRF-49137/2		T370 Series CX06 Case Sizes
Miniature T222 Series CSR09 Style MIL-PRF-39003/2	T368 Series High Capacitance		T37X Series CX06 Style MIL-PRF-49137/6
T550 Polymer Hermetic Seal	T396/T398 Series "Fail Safe" Insertion		
GR500 High Reliability Series			

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Tantalum Surface Mount Capacitors • Standard

T491 MnO_2 Series (Industrial Grade)

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T491	A/3216-18 B/3528-21 C/6032-28 D/7343-31 X/7343-43 E/7260-38	3.2 x 1.6 x 1.6 3.5 x 2.8 x 1.9 6.0 x 3.2 x 2.5 7.3 x 4.3 x 2.8 7.3 x 4.3 x 4.0 7.3 x 6.0 x 3.6	0.10 –220 μF 0.15 – 150 μF 0.47 – 330 μF 1.5 – 680 μF 6.8 – 1,000 μF 47 – 1,000 μF	• Industrial/Commercial Grade • 2.5 – 50 Volts • ±20%, ±10% capacitance tolerance • Tape and reel packaging • RoHS compliant • Automotive Grade available

T491 MnO_2 Series, Low Profile (Industrial Grade)

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T491 Low Profile	R/2012-12 S/3216-12 T/3528-12 U/6032-15 V/7343-20	2.0 x 1.3 x 1.2 3.2 x 1.6 x 1.2 3.5 x 2.8 x 1.2 6.0 x 3.2 x 1.5 7.3 x 4.3 x 2.0	1.0 – 10 μF 1.0 – 22 μF 3.3 – 100 μF 6.8 – 100 μF 1.0 – 330 μF	• Low profile • 2.5 – 50 Volts • ±20%, ±10% capacitance tolerance • Tape and reel packaging • RoHS compliant

T489 Low Leakage MnO_2 Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T489 Low Leakage	A/3216-18 B/3528-21 C/6032-28 D/7343-31 X/7343-43	3.2 x 1.6 x 1.6 3.5 x 2.8 x 1.9 6.0 x 3.2 x 2.5 7.3 x 4.3 x 2.8 7.3 x 4.3 x 4.0	0.1 – 15 μF 0.68 – 150 μF 1.0 – 150 μF 2.2 – 220 μF 100 – 470 μF	• DC leakage at 0.0075CV • Improved reliability: 0.50%/1,000 hrs, 85°C, rated voltage • Low ESR options available • Operating temperature range of -55˚C to +125˚C • Tape and reel packaging • Automotive Grade available

Tantalum Surface Mount Capacitors • Low ESR MnO_2

T494 Low ESR MnO_2 Series (Industrial Grade)

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T494	A/3216-18 B/3528-21 C/6032-28 D/7343-31 X/7343-43 E/7260-38	3.2 x 1.6 x 1.6 3.5 x 2.8 x 1.9 6.0 x 3.2 x 2.5 7.3 x 4.3 x 2.8 7.3 x 4.3 x 4.0 7.3 x 6.0 x 3.6	0.10 – 100 μF 0.15 – 220 μF 0.47 – 330 μF 1.5 – 680 μF 6.8 – 1,000 μF 470 –1,000 μF	• Low ESR, Industrial Grade • 2.5 – 50 Volts • ±20%, ±10% capacitance tolerance • Tape and reel packaging • RoHS compliant • Automotive Grade available

Tantalum Surface Mount Capacitors • Low ESR MnO_2 (cont.)

T494 Low ESR MnO_2 Series, Low Profile (Industrial Grade)

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T494 Low Profile	R/2012-12 S/3216-12 T/3528-12 U/6032-15 V/7343-20	2.0 x 1.3 x 1.2 3.2 x 1.6 x 1.2 3.5 x 2.8 x 1.2 6.0 x 3.2 x 1.5 7.3 x 4.3 x 2.0	1.0 – 10 µF 1.0 – 22 µF 3.3 – 100 µF 6.8 – 100 µF 1.0 – 330 µF	• Low profile, low ESR • 4 – 50 Volts • ±20%, ±10% capacitance tolerance • Tape and reel packaging • RoHS compliant

T495 Low ESR MnO_2 Series (Surge Robust)

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T495	A/3216-18 B/3528-21 C/6032-28 D/7343-31 X/7343-43 E/7260-38	3.6 x 1.6 x 1.6 3.5 x 2.8 x 1.9 6.0 x 3.2 x 2.5 7.3 x 4.3 x 2.8 7.3 x 4.3 x 4.0 7.3 x 6.0 x 3.6	0.47 – 22 µF 0.47 – 150 µF 1.0 – 330 µF 2.2 – 470 µF 4.7 – 1,000 µF 100 – 1,000 µF	• Low ESR, surge robust series • 2.5 – 50 Volts • ±20%, ±10% capacitance tolerance • Tape and reel packaging • RoHS compliant • Available DSCC Drawing 95158 • Automotive Grade available

T495 Low ESR MnO_2 Series, Low Profile (Surge Robust)

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T495 Low Profile	T/3528-12 V/7343-20	3.5 x 2.8 x 1.2 7.3 x 4.3 x 2.0	10 – 100 µF 68 – 220 µF	• Low profile, low ESR, surge robust • 2.5 – 16 Volts • ±20%, ±10% capacitance tolerance • Tape and reel packaging • RoHS compliant • Automotive Grade available

T510 Low ESR MnO_2 Series (Multiple Anode)

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T510	X/7343-43 E/7260-38	7.3 x 4.3 x 4.0 7.3 x 6.0 x 3.6	22 – 1,000 µF 47 – 1,000 µF	• Low ESR (<10 – 120 mΩ) • 4 – 25 Volts • ±20%, ±10% capacitance tolerance • Tape and reel packaging • RoHS compliant • Automotive & Space Grade available

Tantalum Capacitors
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Tantalum Surface Mount Capacitors • Low ESR MnO_2 (cont.)

Tantalum Stack MnO_2 (TSM) Series

Series	KEMET Case Size	Dimensions L x W x H (mm)	Capacitance Range	Benefits
TSM	2C 3C 4C 6C 2D 3D 4D 6D 2X 3X 4X 6X	6.5 x 3.3 x 5.3 6.5 x 3.3 x 7.8 6.5 x 6.6 x 5.3 6.5 x 6.6 x 7.8 8.0 x 4.4 x 6.2 8.0 x 4.4 x 9.2 8.0 x 8.9 x 6.2 8.0 x 8.9 x 9.2 8.0 x 4.4 x 8.9 8.0 x 4.4 x 13.3 8.0 x 8.9 x 8.9 8.0 x 8.9 x 13.3	20 – 440 µF 30 – 660 µF 40 – 880 µF 60 – 1,320 µF 9.4 – 660 µF 14 – 990 µF 19 – 1,320 µF 28 – 1,980 µF 20 – 660 µF 30 – 990 µF 40 – 1,320 µF 60 – 1,980 µF	• High capacitance • Surface mountable • Capacitance can be custom specified • Voltage ratings of 6 to 50 VDC • High volumetric efficiency • Ultra low ESR • Surge capability • Weibull failure options B and C • Operating temperature range of -55˚C to +125˚C

Tantalum Surface Mount Capacitors • Low ESR Polymer

Polymer Tantalum Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T520	A/3216-18 B/3528-21 C/6032-28 D/7343-31 L/6032-19 Y/7343-40 X/7343-43 M/3528-15 T/3528-12 U/6032-15 W/7343-15 V/7343-20	3.2 x 1.6 x 1.6 3.5 x 2.8 x 1.9 6.0 x 3.2 x 2.5 7.3 x 4.3 x 2.8 6.0 x 3.2 x 1.9 7.3 x 4.3 x 4.0 max 7.3 x 4.3 x 4.0 3.5 x 2.8 x 1.5 3.5 x 2.8 x 1.2 max 6.0 x 3.2 x 1.5 max 7.3 x 4.3 x 1.5 max 7.3 x 4.3 x 1.9 max	10 – 100 µF 33 – 330 µF 68 – 330 µF 15 – 1,000 µF 100 – 330 µF 330 – 1,000 µF 330 – 1,000 µF 150 – 330 µF 15 – 100 µF 33 – 220 µF 33 – 470 µF 15 – 470 µF	• KEMET organic with polymer cathode • 2 – 25 Volts • ±20% capacitance tolerance • RoHS compliant • Low ESR (6 to 80 mΩ) • High ripple handling • 100% surge current test • 100% accelerated steady state aging

High Voltage Polymer Tantalum Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T521	D/7343-31 V/7343-20 X/7343-43	7.3 x 4.3 x 2.8 7.3 x 4.3 x 1.9 max 7.3 x 4.3 x 4.0	33 – 100 µF 15 – 100 µF 33 – 330 µF	• KEMET organic with polymer cathode • Highest voltage polymer tantalum • 16 – 35 Volts • Low ESR • RoHS compliant • Suitable for 28 V power rail • 100% surge current test • 100% accelerated steady state aging

Reduced Leakage Polymer Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T522	V/7343-20 Y/7343-40	7.3 x 4.3 x 2.0 7.3 x 4.3 x 4.0	150 – 330 µF 470 µF	• KEMET organic with polymer cathode • Low ESR • RoHS compliant • 100% surge current test • 100% accelerated steady state aging • Reduced leakage

Tantalum Surface Mount Capacitors • Low ESR Polymer (cont.)

125°C Rated Polymer Tantalum Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T525	T/3528-12 B/3528-21 D/7343-31 Y/7343-40	3.5 x 2.8 x 1.2 3.5 x 2.8 x 1.9 7.3 x 4.3 x 2.8 7.3 x 4.3 x 4.0	33 – 100 µF 33 – 150 µF 47 – 680 µF 330 – 470 µF	• KEMET organic with polymer cathode • 2.5 — 16 Volts • ±20% capacitance tolerance • 125°C maximum operating temperature • RoHS compliant • Available DSCC Drawing 04051 • Automotive Grade available

Low ESL/Facedown Terminal Polymer Tantalum Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T528	I/3216-10 M/3528-15 Z/7343-17 W/7343-15 K/3528-10	3.2 x 1.6 x 1.0 3.5 x 2.8 x 1.5 7.3 x 4.3 x 1.7 max 7.3 x 4.3 x 1.15 max 3.5 x 2.8 x 1.0 max	33 – 100 µF 100 – 220 µF 150 – 330 µF 150 – 330 µF 150 – 220 µF	• Face down termination organic • Low profile • Low ESL < 0.7 nH @ 20 MHz • 2.5 – 10 Volts • ±20% capacitance tolerance • RoHS compliant • Lower ESR (≤ 5 mΩ)

High Capacitance/125°C Rated Polymer Tantalum Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T530	D/7343-31 Y/7343-40 X/7343-43	7.3 x 4.3 x 2.8 7.3 x 4.3 x 1.9 7.3 x 4.3 x 4.0	150 – 680 µF 220 – 1,000 µF 150 – 1,500 µF	• KEMET organic with polymer cathode • 2.5 – 10 Volts • Ultra-low ESR (≤ 4 mΩ available) • ±20% capacitance tolerance • RoHS compliant • Available DSCC Drawing 04052

High Energy Polymer Tantalum Series

Series	KEMET Case Size	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T545	D/7343–31	7.3 x 4.3 x 2.8	100	• Extremely low ESR • High energy delivery capability • -55°C to 85°C operating temperature range • Polymer cathode technology • High frequency capacitance retention • Non-ignition failure mode • Capacitance up to 1,500 µF • Voltage: 6.3 – 16 V • 100% accelerated steady state aging • 100% surge current tested • 100% thermal shock • Volumetric efficiency, very high capacitance • Self-healing mechanism • Taped and reeled per EIA 481-1, EIA standard case sizes
	H/7360–20	7.3 x 6.0 x 2.0	1,000 – 1,500	
	V/7343–20	7.3 x 4.3 x 2.0	100	
	W/7343–15	7.3 x 4.3 x 1.5	47 – 470	
	X/7343–43	7.3 x 4.3 x 4.0	220 – 470	
	Y/7343–40	7.3 x 4.3 x 4.0	330 – 470	

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Tantalum Surface Mount Capacitors • Low ESR Polymer (cont.)

Tantalum Stack Polymer (TSP) Series

Series	KEMET Case Size	Dimensions L x W x H (mm)	Capacitance Range	Benefits
TSP	6B 2D 3D 4D 6D	4.1 x 6.1 x 6.3 8.0 x 4.4 x 6.2 8.0 x 4.4 x 9.2 8.0 x 8.9 x 6.2 8.0 x 8.9 x 9.2	198 – 900 µF 94 – 660 µF 141 – 2,040 µF 188 – 2,720 µF 282 – 4,080 µF	• Polymer cathode technology • High capacitance • Surface mountable • Capacitance can be custom specified • Voltage ratings of 6 to 50 VDC • High volumetric efficiency • Ultra low ESR • Surge capability • Operating temperature range of -55°C to +125°C

Tantalum Surface Mount Capacitors • High Temperature

150°C Rated MnO_2

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T498	A/3216-18 B/3528-21 C/6032-28 D/7343-31 X/7343-43	3.2 x 1.6 x 1.6 3.5 x 2.8 x 1.9 6.0 x 3.2 x 2.5 7.3 x 4.3 x 2.8 7.3 x 4.3 x 4.0	0.33 – 4.7 µF 2.2 – 33 µF 1.5 – 47 µF 10 – 100 µF 22 – 220 µF	• 150°C maximum high temperature • 6 – 50 Volts • ±20%, ±10% capacitance tolerance • Tape and reel packaging • RoHS compliant • Automotive Grade available

175°C Rated MnO_2

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T499	A/3216-18 B/3528-21 C/6032-28 D/7343-31 X/7343-43	3.2 x 1.6 x 1.6 3.5 x 2.8 x 1.9 6.0 x 3.2 x 2.5 7.3 x 4.3 x 2.8 7.3 x 4.3 x 4.0	0.15 – 4.7 µF 0.47 – 33 µF 1.5 – 68 µF 3.3 – 150 µF 33 – 220 µF	• 175°C maximum high temperature • 6 – 50 Volts • ±20%, ±10% capacitance tolerance • Tape and reel packaging • RoHS compliant • Automotive Grade available

Tantalum Surface Mount Capacitors • High Reliability Commercial Off-The-Shelf (COTS)

High Volumetric Efficiency Facedown MnO_2 Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T428	P/7260-38	7.2 x 6.0 x 3.8	15 – 470 µF	• High CV/cc • Taped and reeled per EIA 481-1 • SnPb termination finish • Laser-marked case • 100% surge current test available • Halogen-free epoxy • Tolerances of ±5%, ±10% and ±20% • Voltage rating of 4 to 50 VDC • Extended range values • Pick-and-place friendly • RoHS compliant and lead-free terminations available • Operating temperature range of -55°C to +125°C

Tantalum Surface Mount Capacitors • High Reliability Commercial Off-The-Shelf (COTS) (cont.)

Military/Aerospace COTS MnO_2 Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T493	A/3216-18 B/3528-21 C/6032-28 D/7343-31 X/7343-43 E/7260-38	3.2 x 1.6 x 1.6 3.5 x 2.8 x 1.9 6.0 x 3.2 x 2.5 7.3 x 4.3 x 2.8 7.3 x 4.3 x 4.0 7.3 x 6.0 x 3.6	0.10 – 100 μF 0.15 – 100 μF 0.47 – 220 μF 1.5 – 330 μF 4.7 – 4,700 μF 47 – 68 μF	• Commercial Off-The-Shelf (COTS) • 4 – 50 Volts • ±20%, ±10% capacitance tolerance • CECC qualified • Tape and reel packaging • Low ESR, surge tested, Weibull graded, termination options • Space Grade available

High Grade COTS MnO_2 Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T497	A/3216-18 B/3528-21 C/6032-28 D/7343-31 E/7260-38 F/2217-13 G/2711-10 H/2915-15 X/7343-43	2.54 x 1.27 x 1.27 3.81 x 1.27 x 1.27 5.08 x 1.27 x 1.27 3.81 x 2.54 x 1.27 5.08 x 2.54 x 1.27 5.59 x 3.43 x 1.78 6.73 x 2.79 x 2.79 7.24 x 3.81 x 2.79 6.93 x 5.41 x 2.74	0.33 – 4.7 μF 0.68 – 15 μF 0.47 – 0.68 μF 1.5 – 33 μF 2.2 – 68 μF 4.7 – 68 μF 6.8 – 150 μF 15 – 150 μF 15 – 33 μF	• High grade Commercial Off-The-Shelf (COTS) • 4 – 50 Volts • ±20%, ±10% capacitance tolerance • 100% accelerated steady state aging • 100% thermal shock • Surge current testing available • Tape and reel packaging • RoHS compliant • Termination options available • Space Grade available

Multiple Anode Low ESR COTS MnO_2 Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range (μF)	Benefits
T513	E/7260-38	7.3 x 6.0 x 4.0	100 – 1,000	• Meets or exceeds EIA Standard 535BAAC • Taped and reeled per EIA 481–1 • High surge current capability • Termination options B, C, H, K, T • High ripple current capability • Surge testing options • 100% steady-state accelerated aging • Tolerances of ±10% and ±20% • Voltage rating of 4 VDC–25 VDC • Case sizes E and X • ESR as low as 12 mΩ • RoHS compliant and lead-free terminations • Operating temperature range of -55˚C to +125˚C
	X/7343038	7.3 x 4.3 x 4.0	68 – 1,000	

Polymer COTS Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T540	B/3528-21 D/7343-31	3.5 x 2.8 x 1.9 7.3 x 4.3 x 2.8	22 – 150 μF 47 – 680 μF	• Polymer cathode technology • 125°C maximum operating temperature • High frequency capacitance retention • Benign failure mode • Tape and reel packaging • Low ESR, surge tested

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Tantalum Surface Mount Capacitors • High Reliability Commercial Off-The-Shelf (COTS) (cont.)

Polymer COTS Multiple Anode Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T541	D/7343-31 X/7343-43 Y/7343-40	7.3 x 4.3 x 2.8 7.3 x 4.3 x 4.0 7.3 x 4.3 x 4.0 max	150 – 680 μF 150 – 1,000 μF 220 – 680 μF	• Polymer cathode technology • 125°C maximum operating temperature • High frequency capacitance retention • Benign failure mode • ESR: 10 mΩ to 40 mW • Tape and reel packaging • Low ESR, surge tested

Polymer Tantalum COTS Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T543	A/3216-18 B/3528-21 C/6032-28 D/7343-31 H/7360-20 L/6032-19 M/3528-15 T/3528-12 U/6032-15 V/7343-20 W/7343-15 X/7343-43 Y/7343-4	3.2 x 1.6 x 1.6 3.5 x 2.8 x 1.9 6.0 x 3.2 x 2.5 7.3 x 4.3 x 2.8 7.3 x 6.0 x 2.0 6.0 x 3.0 x 1.9 3.5 x 2.8 x 1.5 3.5 x 2.8 x 1.2 6.0 x 3.2 x 1.5 7.3 x 4.3 x 2.0 7.3 x 4.3 x 1.5 7.3 x 4.3 x 4.0 7.3 x 4.3 x 4.0	10 – 100 μF 10 – 330 μF 22 – 330 μF 10 – 1,500 μF 1,000 – 1,500 μF 100 – 330 μF 150 μF 10 – 100 μF 33 – 220 μF 15 – 470 μF 33 – 470 μF 12 – 1,500 μF 150 – 1,000 μF	• Extremely low ESR • -55°C to 105°C operating temperature range • Polymer cathode technology • High frequency capacitance retention • Non-ignition failure mode • Capacitance up to 1,500 μF • Enhanced derating • 100% accelerated steady state aging • 100% surge current tested • Taped and reeled per EIA 481-1 • Volumetric efficiency and self-healing mechanism • Termination options (SnPb and 100% Sn) • Surge options at 25°C and -55°C/85°C • EIA standard case sizes

Tantalum Surface Mount Capacitors • MIL-PRF (CWR Style) Established Reliability

MIL-PRF (CWR Style)

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T409 T419 T429	A/3216-18 B/3528-21 C/6032-28 D/7343-31 E/7260-38 F/2217-13 G/2711-10 H/2915-15 X/7343-43	2.54 x 1.27 x 1.27 3.81 x 1.27 x 1.27 5.08 x 1.27 x 1.27 3.81 x 2.54 x 1.27 5.08 x 2.54 x 1.27 5.59 x 3.43 x 1.78 6.73 x 2.79 x 2.79 7.24 x 3.81 x 2.79 6.93 x 5.41 x 2.74	0.1 – 6.8 μF 0.22 – 22 μF 0.47 – 10 μF 0.68 – 33 μF 1.0 – 68 μF 1.5 – 100 μF 3.3 – 150 μF 4.7 – 330 μF 15 – 150 μF	• MIL-PRF-55365/4 & 11 (CWR09/19/29) • 4 – 50 Volts • ±20%, ±10%, ±5% capacitance tolerance • 100% surge current test available • Tape and reel packaging • Termination options available

CWR11 Style MIL-PRF-55365/8

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T492	A/3216-18 B/3528-21 C/6032-28 D/7343-31	3.2 x 1.6 x 1.6 3.5 x 2.8 x 1.9 6.0 x 3.2 x 2.5 7.3 x 4.3 x 2.8	0.10 – 4.7 μF 1.5 – 15 μF 0.47 – 33 μF 1.5 – 100 μF	• MIL-PRF-55365/8 (CWR11) • 4 – 50 Volts • ±20%, ±10%, ±5% capacitance tolerance • Tape and reel packaging • 100% surge current test available • Termination options available

Tantalum Surface Mount Capacitors • Fused

Fused MnO_2 Series

Series	Case Size KEMET/EIA	Dimensions L x W x H (mm)	Capacitance Range	Benefits
T496	B/3528-21 C/6032-28 D/7343-31 X/7343-43	3.5 x 2.8 x 1.9 6.0 x 3.2 x 2.5 7.3 x 4.3 x 2.8 7.3 x 4.3 x 4.0	0.15 – 22 μF 0.47 – 150 μF 2.2 – 330 μF 10 – 470 μF	• Fail-safe fused series • 2.5 – 50 Volts • ±20%, ±10% capacitance tolerance • Tape and reel packaging • RoHS compliant • Available DSCC Drawing 04053 • Space Grade available • Commercial Off-The-Shelf available

Aluminum Polymer Surface Mount Capacitors

KEMET Organic Capacitor (AO-CAP) A700

Series	Case Size	Dimensions D x H (inches)	Capacitance Range	Benefits
A700	V/7343-20	7.3 x 4.3 x 1.9	8.2 – 150 μF	• Organic polymer for counter-electrode material • Pb-Free • Extremely low ESR (7 mΩ – 28 mΩ) • 2 – 10 Volts • ±20% capacitance tolerance • Tape and reel packaging
	D/7343-31	7.3 x 4.3 x 2.8	56.0 – 220 μF	
	X/7343-43	7.3 x 4.3 x 4.0	100.0 – 470 μF	

Tantalum Through-Hole Capacitors • Hermetic Seal

Polar T110/T140 Series, CSR13 Case Sizes

Case Size	Dimensions D x L (inches)		Capacitance Range	Benefits
	Uninsulated	Insulated		
A	0.125 x 0.250	0.135 x 0.286	0.0047 – 12 μF	• 6 – 125 Volts • ±20%, ±10%, ±5% capacitance tolerance • Tape and reel packaging available • Available RoHS compliant • CECC-qualified
B	0.175 x 0.438	0.185 x 0.474	0.39 – 100 μF	
C	0.279 x 0.650	0.289 x 0.686	2.7 – 470 μF	
D	0.341 x 0.750	0.351 x 0.786	8.2 – 1,200 μF	

Polar T2XX Series CSR/CSS Style MIL-PRF-39003

Case Size	Dimensions D x L (inches)		Capacitance Range	Benefits
	Uninsulated	Insulated		
A	0.125 x 0.250	0.135 x 0.286	0.0047 – 12 μF	• 6 – 100 Volts • ±20%, ±10%, ±5% capacitance tolerance • Tape and reel packaging available • MIL-PRF-39003/01/03/04/06/09/10 • 100% surge current test available • See www.kemet.com for QPL information
B	0.175 x 0.438	0.185 x 0.474	0.39 – 100 μF	
C	0.279 x 0.650	0.289 x 0.686	2.7 – 470 μF	
D	0.341 x 0.750	0.351 x 0.786	8.2 – 1,200 μF	

Miniature T222 CSR09 Style MIL-PRF-39003/2

Case Size	Dimensions D x L (inches)		Capacitance Range	Benefits
	Uninsulated	Insulated		
A	0.085 x 0.245	0.090 x 0.250	0.047 – 2.7 μF	• 6 – 75 Volts • ±20%, ±10%, ±5% capacitance tolerance • MIL-PRF-39003/02 approved • 100% surge current test available • See www.kemet.com for QPL information
B	0.127 x 0.375	0.138 x 0.390	0.2 – 18 μF	

Tantalum Capacitors

Tantalum Through-Hole • Hermetic Seal (cont.)

Polymer Hermetic Seal (PHS) Series

Series	Case Size KEMET/EIA	Dimensions L x D (mm)	Capacitance Range (μF)	Benefits
T550	B	0.641 x 0.28	100 – 120	• +105°C maximum operating temperature • Polymer cathode technology • ≤ 0.0075 CV (μA) at rated voltage after 5 minutes • Extremely low ESR • High frequency capacitance retention • Low temperature capacitance retention • 100% accelerated steady state aging • 100% surge current tested • 100% Simulated Breakdown Screening™ • Volumetric efficiency • Use of up to 80% of rated voltage • Non-ignition failure mode • Approximately 25% lighter than equivalent wet tantalum • Case dimensions equivalent to MIL-PRF-39006/25

GR500 High Reliability Series

For specific GR500 High Reliability information, please refer to www.kemet.com.

See T2XX information on page 62 for case size dimensions.

Tantalum Through-Hole Capacitors • Radial Dipped

T35X Series Standard UltraDip II

Series	Dimensions D x H (inches)	Capacitance Range	Benefits
A	0.175 x 0.280 - 0.400	0.10 – 10 μF	• 3 – 50 Volts • ±20%, ±10%, ±5% capacitance tolerance • Tape and reel packaging available • Six lead configurations available • 0.10, 0.20, 0.25, & 0.125 lead spacing available • Available RoHS compliant **Note:** "H" dimension is the range for all T35X Series. For specific "H" dimensions, refer to www.kemet.com.
B	0.175 x 0.300 - 0.410	0.39 – 15 μF	
C	0.196 x 0.330 - 0.440	1.8 – 22 μF	
D	0.196 x 0.340 - 0.450	1.2 – 33 μF	
E	0.216 x 0.350 - 0.460	1.5 – 47 μF	
F	0.236 x 0.390 - 0.500	2.7 – 68 μF	
G	0.250 x 0.400 - 0.510	3.9 – 100 μF	
H	0.300 x 0.400 - 0.520	5.6 – 150 μF	
J	0.330 x 0.500 - 0.580	6.8 – 220 μF	
K	0.350 x 0.530 - 0.630	10.0 – 330 μF	
L	0.350 x 0.630 - 0.730	15.0 – 470 μF	
M	0.400 x 0.670 - 0.760	22.0 – 680 μF	

T363/T369 Series CX02/09 Style MIL-PRF-49137/2

Series	Dimensions D x H (inches)	Capacitance Range	Benefits
A	0.175 x 0.350	0.10 – 6.8 μF	• 6 – 50 Volts • ±20%, ±10%, ±5% capacitance tolerance • Tape and reel packaging available • MIL-PRF-49137 (CX02/CX12) approved (CX12 available A & B case) • See www.kemet.com for QPL information
B	0.250 x 0.450	1.5 – 68 μF	
C	0.350 x 0.610	6.8 – 150 μF	
D	0.400 x 0.740	22.0 – 330 μF	

Tantalum Through-Hole Capacitors • Radial Dipped

T368 Series High Capacitance UltraDip II

Series	Dimensions D x H (inches)	Capacitance Range	Benefits
C	0.250 x 0.400 x 0.420	5.6 – 150 µF	• 6 - 50 Volts • ±20%, ±10%, ±5% capacitance tolerance • Tape and reel packaging available
D	0.250 x 0.460 x 0.520	18.0 – 330 µF	

Tantalum Through-Hole Capacitors • Radial Dipped

T396/T398 Series Three-Leaded UltraDip III

Series	Dimensions W x T x H (inches)	Capacitance Range	Benefits
A	0.280 x 0.190 x 0.310/0.355	0.10 – 10 µF	• 3 – 50 Volts • ±20%, ±10% capacitance tolerance • Tape and reel packaging available • Three lead design, fail-safe insertion • Available RoHS compliant **Note:** "H" dimension is for both T396/T398.
B	0.280 x 0.190 x 0.320/0.365	0.47 – 15 µF	
C	0.280 x 0.200 x 0.360/0.390	2.2 – 22 µF	
D	0.280 x 0.200 x 0.370/0.390	3.3 – 33 µF	
E	0.280 x 0.230 x 0.380/0.415	1.5 – 47 µF	
F	0.280 x 0.240 x 0.410/0.430	3.3 – 68 µF	
G	0.280 x 0.250 x 0.420/0.440	4.7 – 100 µF	
H	0.280 x 0.270 x 0.420/0.440	22.0 – 150 µF	
J	0.300 x 0.300 x 0.460/0.480	6.8 – 220 µF	
K	0.340 x 0.340 x 0.500/0.500	10.0 – 330 µF	
L	0.340 x 0.340 x 0.560/0.580	15.0 – 470 µF	
M	0.360 x 0.360 x 0.620/0.620	22.0 – 680 µF	

Tantalum Through-Hole Capacitors • Molded Axial & Radial

T32X Series CX01/05 Style MIL-PRF-49137/1 & 5

Series	Dimensions D x L x W (inches)	Capacitance Range	Benefits
A	0.095 x 0.260 x 0.020	0.10 – 10 µF	• 2 – 50 Volts • ±20%, ±10%, ±5% capacitance tolerance • Tape and reel packaging available • MIL-PRF-49137/1 & 5 (CX01 & CX05) approved • Miniature – polar type • See www.kemet.com for QPL information • Available RoHS compliant
B	0.110 x 0.290 x 0.020	0.33 – 33 µF	
C	0.180 x 0.345 x 0.020	1.2 – 68 µF	
D	0.180 x 0.420 x 0.020	2.7 – 68 µF	
E	0.280 x 0.530 x 0.025	5.6 – 220 µF	
F	0.300 x 0.710 x 0.025	12.0 – 330 µF	

We're everywhere you need us to be.

The next time you board an airplane, boot up your computer or read about a breakthrough medical device, a piece of our technology is likely involved. KEMET customers include nearly all of the world's major electronics original equipment manufacturers, manufacturing services companies and electronics distributors. High Reliability versions of our capacitors are even in outer space, part of every important military and aerospace effort of the past 60 years, from the first Telstar satellite and Apollo 11 to the Patriot missile, International Space Station and Mars Pathfinder.

Our sales offices can't be quite as ubiquitous as our products, but we do pride ourselves on being where you need us. This map shows you our sales offices around the world.

As you can see, we're not only easy to work with, we're easy to find. And we're more than ready to be your single source capacitance solutions supplier.

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